

Exploring the Appalachian Trail as an Environmental Mega-Transect: Symposium Proceedings



AVEDA



Prepared for: A.T. Mega-Transect participants and network members

Prepared by: the A.T. Mega-Transect Coordination Team

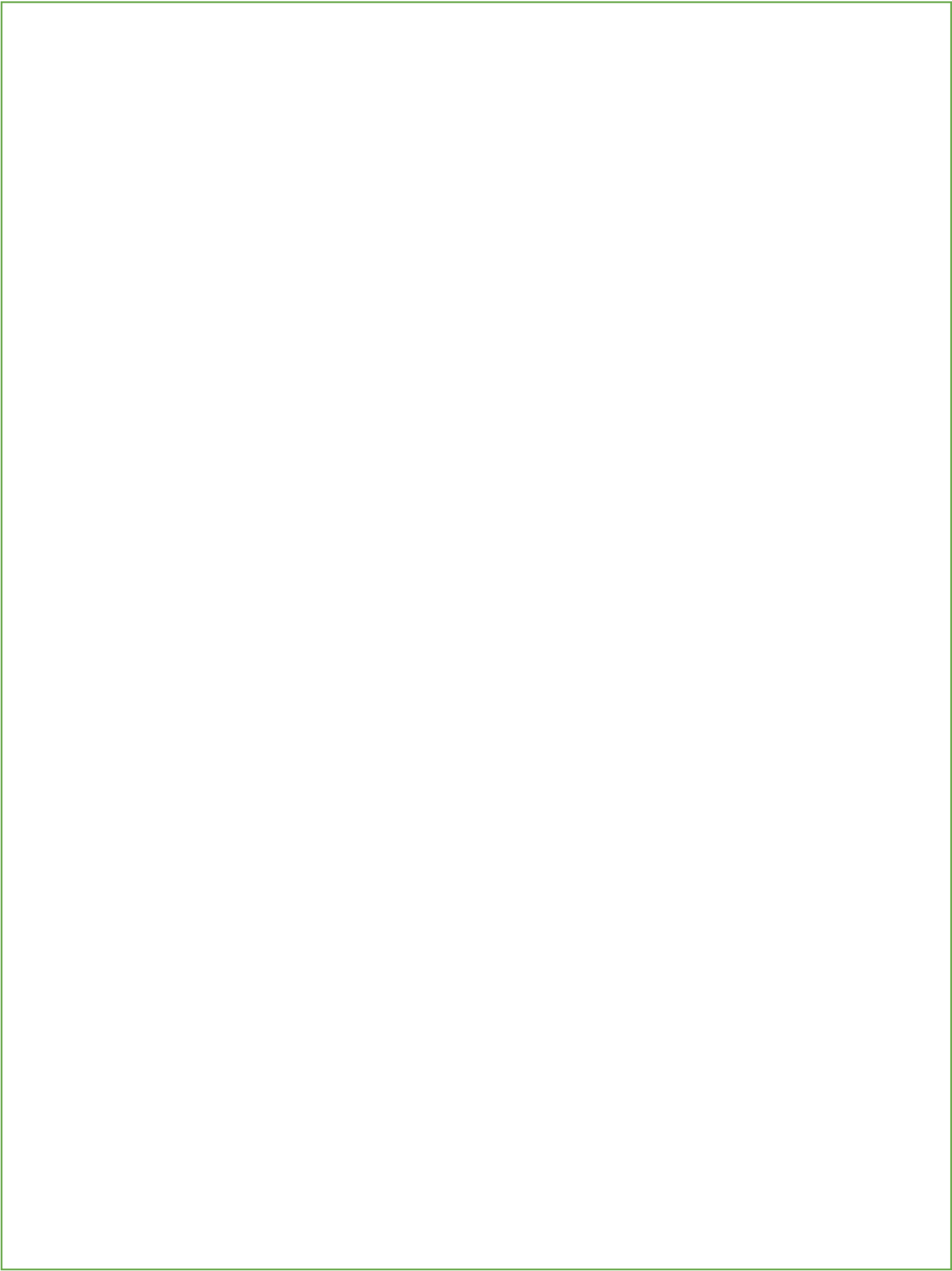
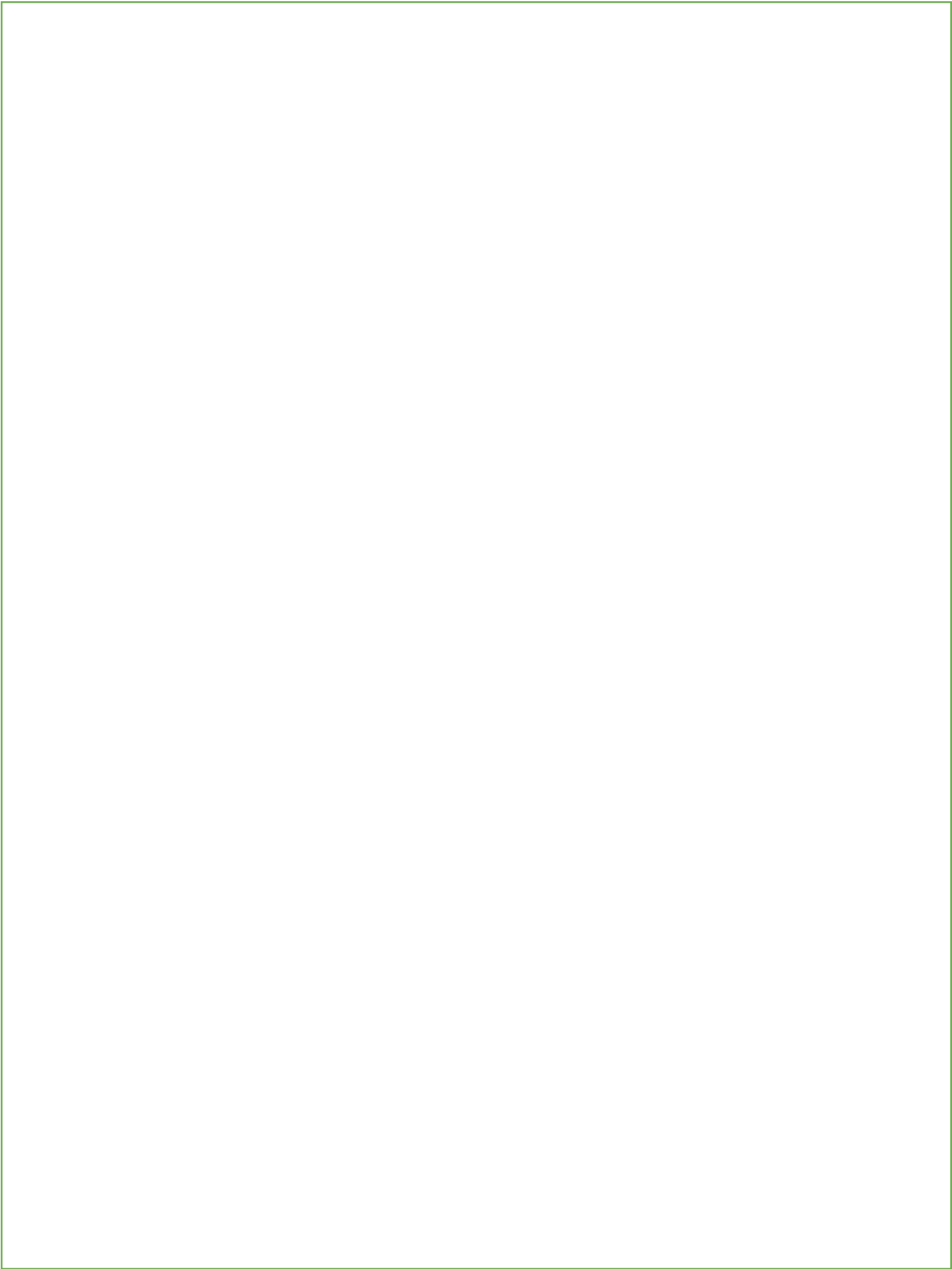


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Forward

We are writing to thank you for contributing to the launch of the Appalachian Trail Mega-Transect! As many of you have heard, the word has spread around the world. The Associated Press story by Vicki Smith was published in about 200 newspapers and other media outlets, including the New York Times, the Washington Post, CNN International, USA Today, and all of the major newspapers along the East Coast. In addition, journalist John Cramer of the Roanoke Times also wrote a third feature story on the Mega-Transect. The reaction from the public has been spontaneous and spectacular – the Appalachian Trail Conservancy (ATC) had more hits on their website over the weekend than it had in the past two months combined. Please refer to Appendix 5 for a follow-up press release prepared by the Appalachian Trail Conservancy, which you are welcome to adapt for your organization or agency to use in spreading the word.

Of course, now the real work begins. Positive press is wonderful, but the success of the Appalachian Trail Mega-Transect ultimately will depend on our collective, long-term efforts to ensure that the project is grounded in good science while maintaining broad public appeal and support. We plan to have a flagship Trail-wide volunteer monitoring project in the pilot stages by next summer. We hope that you will stay engaged in the process as the working groups gather information to use as building blocks for a major report on the health of the Appalachian Trail.

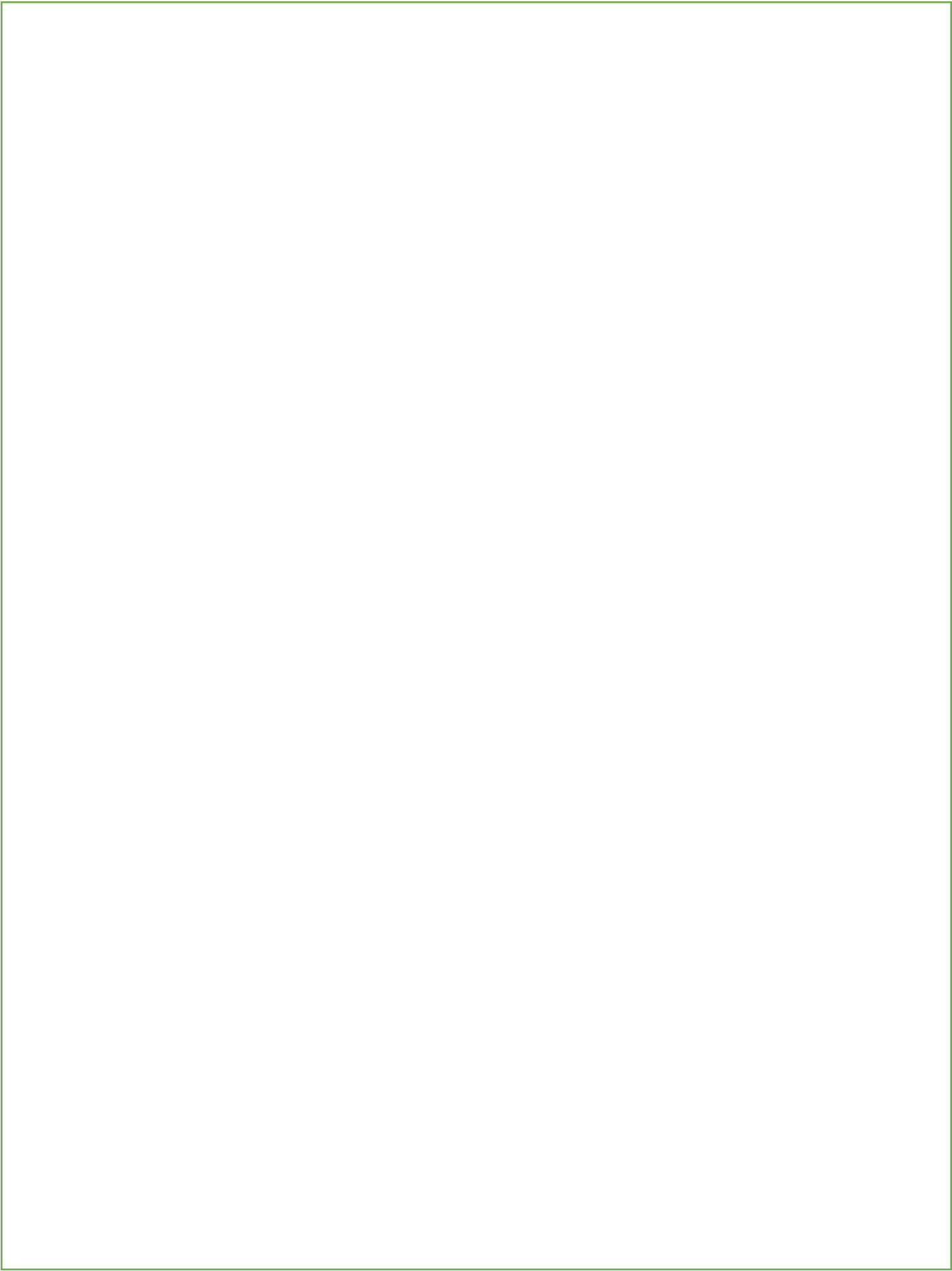
Please stay tuned for more updates on post-symposium progress and don't hesitate to send any questions or comments to ATMega-Transect@appalachiantrail.org. Once again, thank you for all of your hard work. We look forward to continuing our work with you as we launch the Appalachian Trail Mega-Transect!



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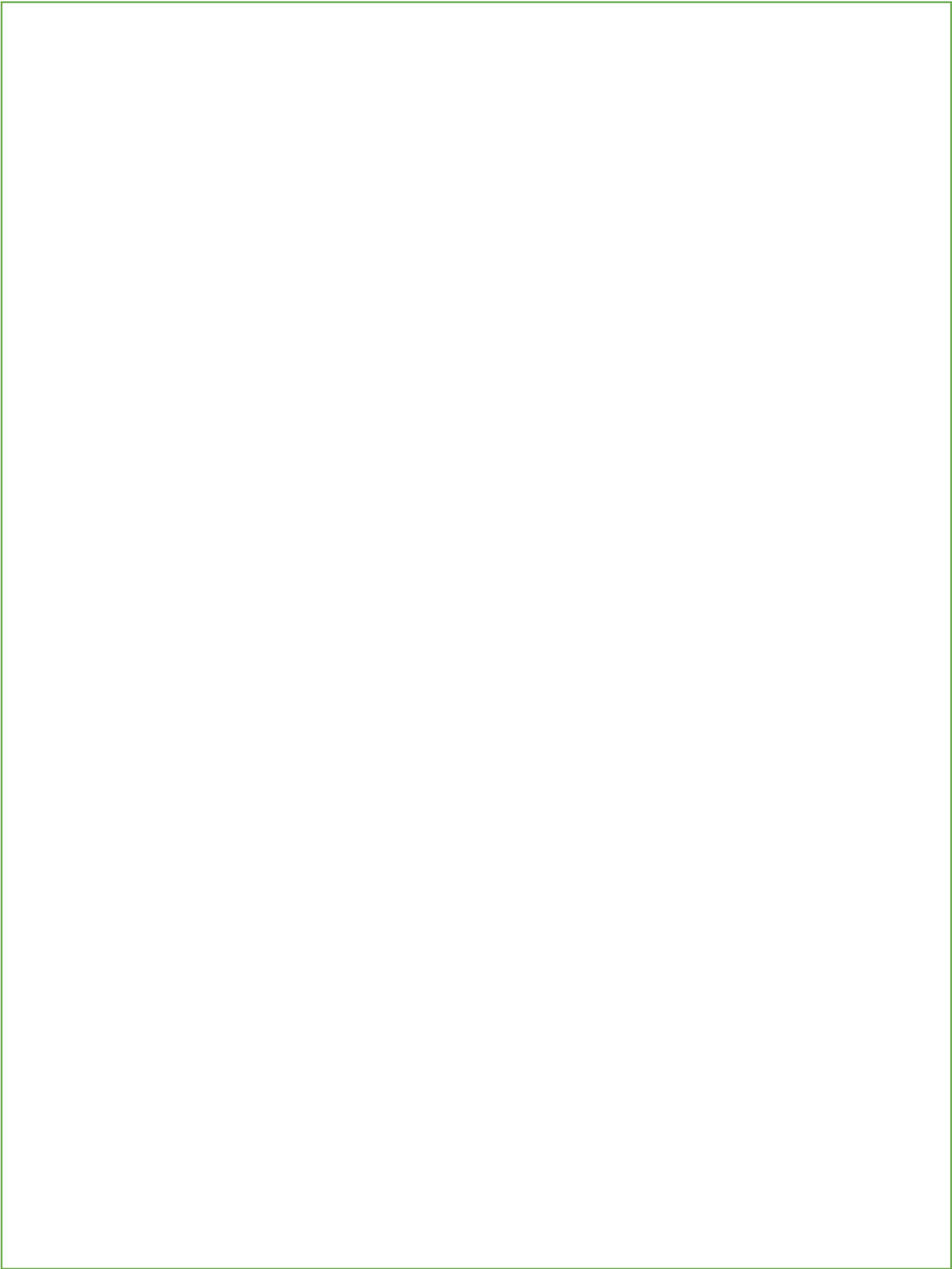
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Purpose of this Report

For more than 25 years, the Appalachian Trail Conservancy and Appalachian Trail Park Office, who coordinate the scores of other government and private non-profit organizations that manage and maintain the Trail, have focused their efforts on securing a permanently protected corridor for the Appalachian Trail. Having nearly completed this goal, we have turned our energies toward assessing, understanding, and managing the wealth of natural resources present on the Appalachian Trail's land base, and telling the story of the Trail's environment to the American public. To this end, a group of sixty-five scientists, natural resource managers, educators, and policy experts from a variety of public and private groups met during a three-day symposium in November 2006 to explore the use of the Appalachian Trail as an environmental monitoring mega-transect. Eight working groups were formed in advance of the symposium to begin exploring current and potential monitoring initiatives along the Trail and its surrounding lands.

This report highlights the progress made during the symposium and will serve as a record of the brainstorming and decision-making that occurred throughout the three-day period. It provides an overview of the A.T. Mega-Transect governance structure, mission statement, and goals, along with a summary of each breakout discussion. Recommendations for future actions are also included throughout the report. Symposium participants and A.T. Mega-Transect network members can use this report to carry forward the enthusiasm and commitment generated by the symposium.



I. Background



The Appalachian Trail traverses the high elevation ridges of the eastern United States, extending 2,175 miles across 14 states. The Trail's corridor encompasses 250,000 acres and intersects with 8 national forests, 7 units of the National Park System, more than 70 State Park, Forest, and Game Management units, and 287 local jurisdictions. The vast Appalachian Mountain range stretches across the entire eastern portion of the North American continent in a north-south alignment from Alabama in the United States to Newfoundland in Canada. Its gradients in elevation, latitude, and moisture have allowed species to survive through eons of dramatic changes in climate and landscapes. As a result, the Appalachian Mountains of today hold one of the richest assemblages of temperate zone species in the world. The Appalachian Trail stretches along the crest of this range, from Springer Mountain in Northern Georgia to Katahdin in central Maine.

While the Trail's recreational value is well understood, its role as a flyway, wildlife and botanical migratory corridor, headwater source of much of the East Coast's water supply, and living catalog of more than 2,000 occurrences of rare, threatened, or endangered species is a relatively recent consideration for the Trail's managers and traditional constituency. In fact, recent biological surveys distinguish the Appalachian Trail as one of the most biologically diverse units of our National Park System. In addition, the Trail's protected land base anchors the nation's eastern forest block. Finally, its ridgeline location provides a perfect point from which to gauge the air quality of the eastern United States.

Threats to the environment of the Appalachian Trail—from development encroachment to recreational misuse, acid precipitation, exotic species, and climate change—represent threats to the health and well-being of many Americans. A poignant example is that Appalachian Trail thru-hikers are frequently experiencing dangerously high ozone levels along the Trail. In essence, the Trail and its protected corridor provide an ideal barometer to gauge changes in the environment that directly impact more than 120 million Americans.

Perhaps most important of all, by virtue of its iconic status and geographic expanse, the Appalachian Trail provides an outstanding opportunity to engage the American public in understanding environmental change. By engaging people in monitoring activities that adhere to monitoring protocols

anchored in the principles of science, and “telling the story” of the health of the environment along the Appalachian Trail, scientists and land managers can use the Trail to illustrate how changes in the environment can impact all of us.

“After two days here with this intimidating assemblage, the extraordinary just keeps getting more extraordinary. This gathering will go down in history as seminal.”

-Pam Underhill, Park Manager of the Appalachian National Scenic Trail

Genesis of a big idea

The concept of using the Appalachian Trail corridor as an environmental mega-transect has surfaced several times in recent years. In 1999, Dr. Charles “Hank” Foster, Harvard Environmental and Natural Resources Program Research Fellow, along with colleagues wrote “Monitoring the Appalachian Trail Environment: A New Exploration”. This concise and seminal missive outlined how the A.T. would evolve from a simple footpath to a valuable source of

environmental information and was, by all accounts, the first time the idea had been put to print. The rest, as they say, is history, but it is important nonetheless and a timeline of activity helps illustrate the enormity of this undertaking.

In 2000, the Appalachian Trail Conference (ATC, changed to Conservancy in 2005) and the Appalachian Trail Park Office (ATPO) hosted two meetings in New Hampshire to further discuss the concept with likely participants and to begin mapping out how the idea might look in practice; who would be involved and how. In November of the same year, Southern Man and the Biosphere (SAMAB) built on this momentum by publishing a plan entitled, “A Conceptual Plan for Monitoring and Assessing the Appalachian Trail Environment”, which expanded on Foster’s original paper. This plan, too, encompassed the Trail’s entire length despite SAMAB’s otherwise regional scope. In May of 2003, ATC and ATPO launched the Appalachian Trail Environmental Monitoring Initiative by hiring a coordinator for a three-year pilot project to experiment with these concepts. Just a few weeks later Foster and friends



New Hampshire

convened a small, intense, one-day session at the New York Academy of Sciences, which further solidified the concept and put together a few pieces on the ground. This meeting included staff from the U.S. Geological Survey, which had expressed interest and support early in the process. Also in 2003, ATC and ATPO began working with the Park Services’ nascent Northeast Temperate Inventory and Monitoring Network (I&M), which had been tasked with coordinating the national I&M program’s work for the A.T. Based on strong sentiment and some early successes, ATC’s strategic plan released in 2004 identified environmental monitoring as a key goal for the protection of the Trail. Later the same year, Trail managers met with I&M program coordinators from all Trail-related networks to decide the suite of indicators or “vital signs” that would be monitored on the A.T. Publication of the National Park Service’s *Appalachian Trail Vital Signs Report* in February 2005 provided an apt launching platform for the symposium in 2006. The brief, but rich, history leading up to the symposium illustrates how many understood the enormity of this idea and level of commitment needed to reach its full potential.

The term “mega-transect” was coined by ecologist and National Geographic Explorer in Residence Michael Fay to describe his monumental fifteen-month journey through more than a thousand miles



Hawk Metheny

of unbroken African forest in 1999 and 2000. Fay’s goal was to observe and record the invaluable secrets that were known to few or no humans. These secrets were not sought as potential sources of plenty, but as an inspiration for people everywhere to be responsible for protecting wild places. As with Dr. Fay’s long walk, any big endeavor needs a name. There is perhaps no better-suited term than “mega-transect” for this project that is centered on 2,175 miles of Appalachian Trail. Well into the symposium preparations, an ATC staff person hit upon another compelling reason to adopt the moniker. Mega, or in this case ME-GA is also shorthand used by A.T. hikers to indicate their effort to hike the Trail from its northern terminus in Maine to its southern terminus in Georgia.

Plan in action

Even as the symposium serves as a large-scale launch of the A.T. Mega-Transect project, there are programs already underway that will likely serve as the first seeds. In addition to the numerous independent research projects that have used the Trail corridor over the years, there are a few programs administered by Trail managers or partner groups. Until recently, however, environmental monitoring programs on the Appalachian Trail corridor have been limited to NPS programs in various parks through which the Trail passes and to the Natural Heritage (rare, threatened, and endangered plants) program initiated by ATC and the ATPO in 1993. The rare, threatened, and endangered plant monitoring program on the A.T. began with inventories in each of the fourteen Trail states. The program is largely a result of a federal mandate to uphold the Endangered Species Act on public land, but also represents partnerships with state Natural Heritage programs as well as many plant conservation organizations. The natural heritage monitoring program has enjoyed success and participation by dedicated volunteers for many years. Unlike other monitoring programs, the natural heritage program is designed specifically to monitor the health and status of known occurrences of rare, threatened, and endangered plants and help managers minimize the risk of extinction or extirpation.

The Appalachian Trail Environmental Monitoring Initiative (ATEMI) began in 2003 as a pilot program to engage citizen scientists in gathering environmental information from the A.T. corridor for use by both A.T. managers and the broader public. The programs of the ATEMI were designed or chosen specifically for their volunteer, citizen-science orientation and simplicity. The ATEMI has included water quality monitoring, ground-level ozone and visibility monitoring, area-sensitive carnivore (wildlife) habitat monitoring, and migratory songbird monitoring. The protocols employed for these programs are, for the most part, well-established and accepted. With the exception of the water quality monitoring protocol, however, they are mostly regional in their scope and need substantial adaptations

to make them applicable in all Trail regions. The simplicity necessary to keep these various protocols affordable, manageable, and applicable at a regional scale influences the accuracy and precision of the tools used to gather data. Even coarse data can be useful and become even more so with temporal longevity. The accessibility of the ATEMI programs makes them ideal for engaging volunteers and therefore candidates for continued use. Over the past two years ATC, ATPO, and SAMAB have been developing and evaluating an A.T.-specific protocol for monitoring forest health, which is based on the USDA Forest Service's Forest Inventory and Analysis and Forest Health Monitoring programs. An A.T. protocol will undoubtedly be developed in conjunction with the I&M program's vital signs.



North Carolina - Tennessee

In 2002, SAMAB initiated the Southern Appalachian Volunteer Environmental Monitoring program (SAVEM). Volunteers with SAVEM monitor water quality and invasive plant populations at sites throughout the southern Appalachians. Though the program is more traditionally oriented to watersheds and forest blocks, many monitoring sites are located on the A.T. corridor. From the start, the program has consisted of a cooperative partnership among SAMAB, ATC, and ATPO. Data from the program are used to determine the best approaches for effective management as well as to improve public awareness of the threats.

In 1998, the National Park Service initiated a "Vital Signs" monitoring program to develop long-term monitoring of natural resources within 270 units of the national park system. These 270 units were organized into 32 networks tasked with designing and implementing long-term ecological monitoring. The Trail was identified as a natural resource park and included in the NPS Inventory and Monitoring program. The A.T., as a single unit of the Park system, passes through 5 of the 32 networks: Appalachian Highlands, Mid-Atlantic, National Capital, Eastern Rivers and Mountains, and the Northeast Temperate. The I&M program designated the Northeast Temperate Network as coordinator of related activities on the A.T. Though the five A.T. networks are at various stages of development (of a 3 phase process), each one contributes similarly to the A.T. project. Synthesizing the work of the I&M program with the programs mentioned in this section, as well as other existing monitoring initiatives along the Trail, is necessary for the A.T. Mega-Transect to be a success.

II. Symposium Overview

Introductions and Overview:

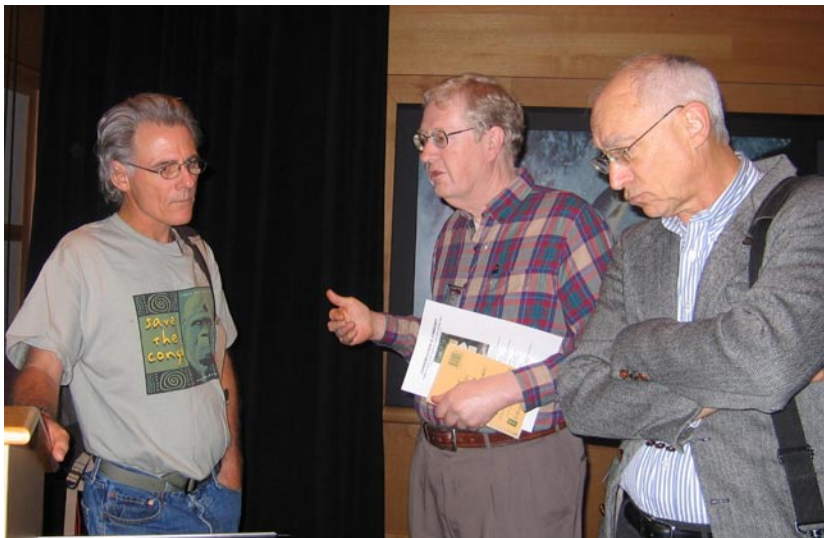
Participants introduced themselves and voiced their expectations for the symposium. They heard an overview of existing work and had the opportunity to exchange information at the Knowledge Fair. In addition, they envisioned the future of the A.T. Mega-Transect during an interactive, evening story-telling program.

Advancing the Monitoring Program Essentials:

Participants discussed the objectives and technical specifications for the Program and heard brief presentations from each of the working groups. The afternoon was spent in breakout sessions on feedback and next steps for the working groups, and the day concluded with a keynote address by Michael Fay.

Exploring Partnerships and Next Steps:

Participants convened in plenary and breakout sessions to discuss the A.T. Partnership Charter, governance for this collaborative initiative and next steps going forward. The symposium ended with participants voicing their pledges to the partnership and inspirational speeches by Dave Startzell and Pam Underhill.



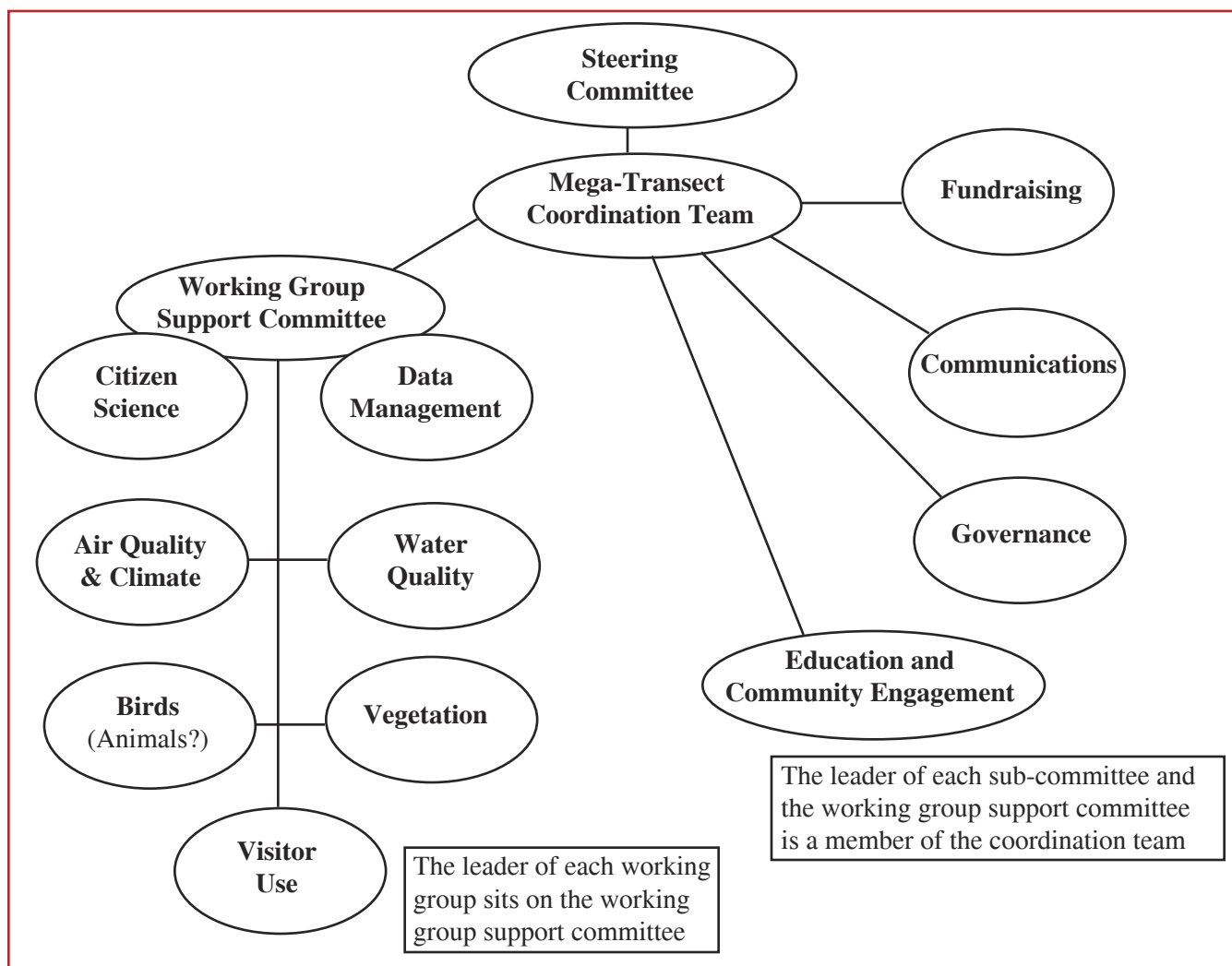
Keynot speaker Mike Fay discusses the concept of a mega-transect with John Peine and Michael Soukup after Friday evening's presentation.

The basic functions of the A.T. Mega-Transect will be carried out by Technical Working Groups that will be responsible for different subject areas. The leaders of each working group will also be part of a Working Group Support Committee that will coordinate work across these groups. Data Management and Citizen Science Sub-Committees will be part of the Working Group Support Committee.

The leader of the Working Group Support Committee will be a part of the overall Mega-Transect Coordination Team. The Coordination Team will also have

Sub-Committees dedicated to governance, communications, fundraising, and education and community engagement. Finally, the Mega-Transect Coordination Team will receive oversight and guidance from a Steering Committee composed of key individuals from participating organizations.

The following governance structure, mission statement, and goals were proposed by symposium participants to put ideas and recommendations into action:



Mission Statement (draft)

Our mission is to establish the Appalachian Trail Mega-Transect to monitor and understand changes in the environment to effectively manage natural resources, foster an appreciation for nature and conservation, and “tell the story” of the health of the Appalachian Trail and surrounding lands to visitors, neighbors, and the American public.

Goals (draft)

- **Monitor** – Collect and synthesize existing and new data on key indicators of environmental health from agencies, organizations, researchers, and citizen scientists
- **Understand** – Transform data into knowledge about the status and trends through analysis, synthesis, and modeling
- **Inform and Engage** – Share this knowledge to engage, educate, and involve decision makers and stakeholders (and citizens) involved in managing and protecting the A.T. environment. Seek to attain the goals of existing natural resource and environmental legislation and make sound decisions for positive change.

Scope

The Appalachian Trail can be seen in two respects – as a social phenomenon and as a representative cross-section of the Appalachian Mountains. To harness the real power of the A.T. Mega- Transect concept, focus should not be strictly on the literal, scientific definition of a mega-transect, but include some poetic licensing as well. During Friday morning’s plenary session, the majority of participants agreed that the scope of the A.T. Mega-Transect should include some narrow corridors and some broader regions, depending on the indicator being examined. For example, monitoring invasive plant species along the Trail can work effectively within the Trail’s narrow corridor. However, collecting data from a broader region and making inferences about the Trail would be more practical in terms of monitoring air quality.



Participants at the A.T. Symposium in the plenary room.

Recommendations for future governance actions include:

- Strengthen language in goals to reflect the need to inform the American public
- Address concerns for agencies that cannot be biased or appear that way, nor be involved with any advocacy/influence
- Define decision-making processes for the Steering Committee, staff, and working groups
- Work to complete a final draft charter by June 2007 (a working draft of the charter can currently be viewed on the NBII portal)
- Official “launch” of the Mega-Transect, target date = June 2007 (funding dependent)
- Address whether or not to include animals in the Mega-Transect Program
- Accept nominations for the Mega-Transect Coordination Team, Steering Committee, and Working Group Support Committee

Working Group Support Committee

A small group of symposium participants met on the final day of the symposium to propose next steps for the working groups. Recommendations for future actions include:

Working Groups

- New charges will be issued to the working groups with the following recommendations:
 - Evaluate working group organization and divide into subgroups where appropriate (especially for Vegetation group)
 - Assign one member from each working group to the Working Group Support Committee to encourage cross fertilization of groups
 - Assemble feedback from symposium and update summary reports
 - Select one or two key indicators with a robust and readily accessible database as well as published literature supporting the scientific relationship of the indicator to the research question

Visioning the State of the Trail Report (projected to be published in 2008)

- Each group will create two-pages for the State of the Trail report, with one page devoted to existing datasets and another page devoted to future work and gap-filling
- Each report should highlight the uniqueness of the A.T. Mega-Transect and use climate change (change as an indicator of environmental condition) as the unifying structure throughout the report*
- Engage our public audience with key messages - messaging and education may be more important than the science in terms of success for this Program

Vital Signs

- Consider adding vital signs to the A.T. Mega-Transect Program (such as amphibians, reptiles, mammals, migratory birds), determine whether or not specific species would be good indicators of ecosystem health
- Establish a mechanism to consider proposals for other vital signs
- Develop a clear statement of vital sign focus, determine which vital signs will be given priority for the A.T. Mega-Transect Program

Funding

- Secure funding to provide working groups with critical resources
- Confirm that current working group leaders are committed to spending time on this initiative
- If funding allows, hold meetings once or twice a year for the first couple of years to keep momentum going. Devote a large chunk of each meeting to breakout sessions.
- If funding is not sufficient, use the NBII portal and conference calls to communicate

NBII portal

- Once the Appalachian Trail Community section of the NBII portal goes public, post informative links for the public to read (for example: things you can do around the house to improve the environment)
- Post key, summary literature on NBII (for example: climate change reports from the Union of Concerned Scientists, etc.)

Miscellaneous

- Monitor cultural as well as natural resources once the A.T. Mega-Transect Program is off the ground (the A.T. is also a transect through American history)

*The group agreed on the importance of engaging the public (currently the A.T. Mega-Transect idea is diffuse and complex). The group debated on whether to use the phrase “climate change” versus “change” as the best method for reaching out to the public. Using “climate change” provides a compelling story on landscape change and may effectively draw in people that aren’t familiar with the A.T. However, to make specific predictions about climate along the Trail we will need to monitor and collect data (currently only general statements can be made). Alternatively, some group members suggested focusing collaboration on “change” in gradient, latitude, longitude, and altitude along the Trail. Overall, the group proposed using “climate change” as an overarching theme for all working groups to use in their two-page section of the State of the Trail report. Group members cautioned that using “change” might be too general and cause the report to lose some of its focus.

III. Symposium Results

“The A.T. Mega-Transect has the potential to support every facet of ATC’s mission. It can reach youth, tomorrow’s volunteers, and decision makers; it can raise awareness and community involvement, it can bolster our capacity to manage and protect the Trail and its natural and cultural resources; and it can embody the values of citizen engagement and collaborative partnerships.”

- Dave Startzell, Executive Director of the Appalachian Trail Conservancy

Technical Working Groups

Please log onto the NBII Appalachian Trail Community portal and explore the Symposium 2006 Landmark Documents Project to view the powerpoint presentations given by the leaders of each working group. In addition, all working group draft summary reports can be found in the Mega-Transect Working Groups Project.

Air Quality and Climate

The Air Quality and Climate working group was created to focus on the effects of air pollution and climate change along the Appalachian Trail environment. Monitoring air quality and climate is very important because of the impacts to humans and resources. This working group decided to address two key monitoring questions:

- How are levels of key pollutants changing over time and space?
- Is the climate changing over time and space?

The Air Quality and Climate working group addressed several natural factors that predispose air quality changes and focused on key emissions and pollutants of concern. In the months prior to the symposium, this working group developed a list of existing programs and datasets along or near the A.T. (refer to the Air Quality and Climate working group’s summary report for a complete list). The Environmental Protection Agency’s AIRNow website was highlighted as a model program to draw from, along with the National Park Service’s Air Atlas website and the Appalachian Mountain Club’s website.



The Advisory Group and Symposium Organizing Team met Thursday afternoon to discuss the day’s progress and highlight key topics to be addressed during Friday and Saturday’s sessions.



Duncan Fairlie

Climate is considered an important indicator that affects all other working groups within the A.T. Mega-Transect Program. Thus, the Air Quality and Climate working group feels it is necessary to collaborate with the other groups to make connections between climate and changes in the A.T. environment (examples include records of fire incidents, thresholds for sensitive species, and invasion of pests and pathogens). The group determined several factors that are likely to play an important role in determining future forest conditions and related air quality and climate change to phenology.

The small group of participants that met during the symposium to discuss air quality and climate decided to prioritize which parameters were most important to the other working groups, with ozone measurements, visibility measurements, and precipitation chemistry measurements given top priority. The group brainstormed about gaps in these parameters that needed to be identified and filled. Mercury deposition was proposed as a new parameter, using the National Atmospheric Deposition Program Mercury Deposition Network (NADP-MDN; <http://nadp.sws.uiuc.edu/mdn/>) and Great Smoky Mountains as existing models to draw information from. Measuring daily minimum and maximum temperatures as well as precipitation and snowpack were also suggested as new parameters.

Several existing programs were mentioned that could be useful for the working group to explore further. Such programs include NASA's satellite imagery of snowcover, the Palmer Drought Severity Index (relating climate change to drought/fire regimes), Gulf Stream-El Nino-La Nina jet stream events, John Gross's inventory of existing weather information from stations located within 20 km of the A.T., and the Normalized Differential Vegetation Index (measuring chlorophyll activity in relation to ozone concentrations).

The group also discussed topics such as ozone effects on sensitive species and hikers at low and high elevations as well as impacts of acid deposition on vegetation and soil chemistry. Relationships between site conditions (slope-elevation-aspect) and rainfall and soil moisture measurements were also mentioned. In addition, the group recognized the need to consider nitrogen saturation, and the importance of nitrogen inputs as $\text{NH}_3/\text{NH}_4^+$ in addition to nitrogen oxides.

The symposium breakout group elaborated on the significant role that citizen scientists can play in collecting air quality and climate data for the A.T. Mega-Transect Program. One group member suggested recruiting a few volunteers to perform an ozone damage survey along the Trail in late July-early August of 2007. Another group member suggested using photographic data for a citizen science visibility monitoring project. One person cautioned that this project has been attempted before and does not work well with film cameras. Providing volunteers with single-use digital cameras or developing minimum protocols for volunteers to use their own cameras or cell phones may improve the chances of this program's success. Instead of film developing costs, citizens could post their photos on the web or email them to a project coordinator. Creating "camera posts" along the Trail may increase the likelihood that the same view is taken each time.

Recommendations for future actions include:

- Determine how to synthesize the large amount of existing air quality data in a meaningful way
- Ask EPA to establish an A.T. corridor domain on their AIRNow website
- Determine what data is required for climate models
- Coordinate with the other working groups to make sure the data gathered is meaningful
- Use air quality and climate as a potential hook to engage the public
- Add other databases to the Air Quality and Climate working group's summary report

Birds

The Appalachian Trail holds great potential as a bird monitoring mega-transect. The Trail's 2,175-mile length, north-south orientation, and passage through sensitive mountain ecosystems present the opportunity to address important questions concerning the status and management of bird populations. The main charge of the Bird working group was to develop a list of key bird monitoring questions that could be addressed by the A.T. Mega-Transect Program. The group decided to look at suites of species for the following two regions, based on Partners in Flight priority rankings:

- Atlantic Northern Forests
 - Are population levels changing?
 - Are ranges shifting, contracting, or expanding?
 - Are changes related to climate change, acid rain, or mercury inputs?
 - What A.T. lands constitute core habitat for Bicknell's Thrush and Blackpoll Warbler?
- Appalachian Mountains
 - Where do rare species breed?
 - What is the conservation significance of grassy balds?
 - Do acid inputs influence Wood Thrush numbers?
 - What conservation, management, or policy decisions could alleviate known stressors?

Many bird monitoring programs already exist. For example, citizen scientists are collecting data on 38 North American Breeding Bird Survey routes that occur within one mile of the Appalachian Trail. However, there are some gaps in existing datasets, such as birds in spruce high elevation habitat, that need to be addressed. The Bird working group recommends that monitoring efforts along the northern portion of the A.T. should give special attention to one of the region's most rare and vulnerable species, Bicknell's Thrush. The Wood Thrush was proposed as a flagship species for a Trail-wide monitoring program, as it is a high conservation priority along the entire length of the A.T.

The Bird working group envisioned two implementation scenarios: synthesis of existing data and establishment of a new, Trail-wide program. The group cautioned that synthesizing the data is of limited value because current bird monitoring programs do not address the A.T. environment and its species. During the Friday breakout session, a handful of symposium participants discussed breaking these two implementation scenarios into the following three approaches:

- *If no funding is available* – synthesize data from existing programs
- *If partial funding is available*– support efforts to monitor Bicknell's Thrush and other mountain-breeding birds along existing A.T. transects in the Northeast; in the Southeast, use playbacks on grassy balds to monitor Golden-winged Warbler, Blue-winged Warbler, and hybrids; coordinate a Trail-wide migratory bird day/month event and send data to eBird
- *If significant funding is available* – design an effective sample scheme that integrates across the Trail, fill gaps in existing datasets

The consensus of the breakout group was to begin with scenario one and expand monitoring as funding is secured. Effort should be devoted to identifying programs and parameters, defining the roles of citizens versus academia, and determining what can be packaged now versus in the future.

The symposium breakout group also discussed examples of high-quality monitoring programs and ideas for future monitoring. Mountain Birdwatch and eBird were credited with maintaining valuable bird datasets. A monitoring program that has met success in Canada was also proposed as something to consider for the A.T. Mega-Transect initiative. The program involves hikers and/or citizen scientists tape recording bird calls while out in the field and returning the tapes to a professional for transcribing.

One participant suggested installing computer kiosks at shelters along the Trail so hikers, birders, and citizens can enter their bird data on the same day they collected it. This should increase the scientific value of the data collected. Another proposal involved a bioblitz along the A.T. This approach would be geared toward birds found along the Trail and time sensitive in nature (dependent on migration patterns). One last proposal considered the options of a status survey with no management approach versus a management-driven questions/adaptive context approach. The status survey method may be useful for the A.T., perhaps becoming a bench-marked dataset 40 years from now.

Several challenges associated with an A.T. Mega-Transect bird monitoring program were also addressed. Birds are often harder to study than other animals because they migrate and move around. In addition, it can be difficult to recruit people to monitor birds deep in the forest and learn many chip notes. Another more conceptual challenge involves the need to establish a good design with clear objectives and knowledge of the available resources in order to have confidence in the program's outcomes. In addition, Trail-wide monitoring requires a large volunteer pool and may take decades to detect changes in bird populations and ranges. The group agreed that the long-term success of the A.T. Mega-Transect program depends on regional coordination and Trail Clubs/citizen scientists.

Recommendations for future actions include:

- Include a list of existing programs and datasets in the bird summary report
- Introduce a second tier of vital signs (such as migrating and wintering birds) to encourage more public engagement and funding
- Secure multi-year funding
- Design a Trail-wide survey, analyze power, and solicit peer review
- Build and support a network of observers
- Coordinate effort with other forest bird surveys
- Assign a National Park Service or Appalachian Trail Conservancy employee to coordinate the data

Vegetation

The Vegetation working group was asked to develop objectives and identifying programs for monitoring and reporting on the condition of Appalachian Trail vegetation. To accomplish this, the group divided into five subgroups: Forest vegetation; high elevation communities; priority rare, threatened and endangered (RTE) species; invasive exotic species; and landscape dynamics.

Before the symposium, the group identified five key information needs:

- What are the trends in the ecological integrity and geographic distribution of forest and high-elevation vegetation communities along the A.T., and what is the impact of multiple stressors on these communities?
- What are the trends in population and distribution of priority RTE species occurrences along the A.T., and what is the impact of stressors and mitigation on these populations?
- What are trends in the geographic extent and distribution along the A.T. of key invasive exotic plants, animals, insects and pathogens, and what are the impacts of these species on A.T. ecological communities and native species?
- What are trends in landscape dynamics along the A.T. and what is their relationship to key resources and human activities?
- How is climate change impacting the geographic distribution, composition and phenology of high-elevation, summit, and ecotonal species? This topic requires collaboration with the Air Quality and Climate working group.



Virginia

The subgroups compiled a list of over 65 existing vegetation datasets, programs, and compilations that may provide useful data or methods relevant to AT vegetation monitoring (refer to the NBII portal for the complete list). Opportunities to engage citizen scientists were highlighted. The working group also identified potential audiences for monitoring information, and suggested types of reports and data products, including scorecards. Some existing A.T. vegetation monitoring data were reviewed in the 2005 Appalachian Trail Vital Signs Report (http://www.nature.nps.gov/im/units/netn/reports/reports_by_category.cfm?recID=Vitalpercent20Signs).

During the Friday breakout session, about a dozen participants discussed topics relating to the vegetation working group. Topics included whether this workgroup should break into smaller workgroups, whether rare, threatened and endangered (RTE) fauna had been overlooked, details about existing datasets, continued participation by workgroup members, and opportunities if funding becomes available. The group recognized that they do not have the technical background to consider fauna and suggested that a new working group might be created to consider RTE fauna. The new group would be charged with compiling existing datasets and monitoring RTE fauna along the Trail. Some members of the vegetation group suggested monitoring animal habitat rather than animals themselves since animals can be difficult to monitor accurately.

The breakout group decided that a good first step would be to identify existing, accessible monitoring programs with data that could provide useful information relevant to the A.T. in the short-term and would facilitate inter-organizational partnerships. Such programs may include the USDA Forest Service Forest Inventory and Analysis program, and the state and A.T. Natural Heritage RTE program data.

Monitoring results will need to be appropriately conveyed to the target audiences, once these audiences have been determined. In addition, a full suite of products including reports for the public as well as peer-reviewed scientific reports would be helpful.

The group went on to discuss the importance of developing a compelling story based on existing monitoring results. The story should have a positive spin and make people aware and involved in order to build support. Success stories and restoration activities should be included, such as success persuading the public to stay on the Trail and avoid trampling high alpine areas. The story should be told from an A.T. perspective, allowing us to leverage the ability of the Mega-Transect to reveal a bigger picture than can be obtained from smaller sites. The Appalachian Trail is a cultural icon, and could follow the lead of the Chesapeake Bay Program to garner public interest and support. Several A.T. story ideas were proposed by the group: climate change, landscape dynamics and effects of nearby population, invasive exotic species, air pollution and visibility, and alpine trampling. Engaging citizen scientists is a good way to reach the public. Existing citizen science programs relevant to the A.T. include the A.T. Natural heritage monitoring, and the Appalachian Mountain Club Mountain Watch program. One participant warned the group to be careful when using the concept of historic range of variability to assess ecological integrity. It can be a useful concept for setting acceptable ranges of variation, but often relies on inadequate information describing historical or unimpaired condition.

An easy-to-read, integrative report of the group's findings with graphics and weblinks to more in-depth information could be a useful short-term project. Also in the short-term, existing vegetation datasets could be used to begin to evaluate the ecological integrity along the Trail. Some members of the vegetation group may explore opportunities for funding vegetation monitoring in conjunction with the A.T. Mega-Transect program. If new funding were obtained, more targeted monitoring could be undertaken. The group recognized it can be challenging to undertake statistically valid analysis on multiple datasets collected by different groups in different ways. However, meta-analysis or Bayesian statistics may be useful.

The group also briefly discussed continued participation by workgroup members. A joint collaborative funding mechanism could pay a core set of people whose jobs are closely aligned to this concept to participate in the working group as advisors. Other group members could participate as volunteers or use the Mega-Transect as an organizing theme for obtaining capacity building or other grants.

Key recommendations of this workgroup include:

- Focus on the key monitoring questions outlined in the Vegetation Workgroup report
- Collaborate with the key programs highlighted in the Vegetation Workgroup report
- Include remote sensing and citizen science whenever possible
- Monitor phenology and range shifts of species in high-elevation and summit communities and in ecotones
- Use innovative reporting tools, such as an ecological integrity scorecard

Action items for this work-group in the near-term include:

- Consider the working group structure and establish leadership roles
- Outline a compelling story from existing data for a new AT Vital Signs report
- Explore and collaborate with existing programs and datasets

Visitor Use

The scope of the Visitor Use working group is to: (1) identify and define visitor-created physical impacts and social impacts of importance to the Trail and its management partners; and (2) create or adapt sustainable Trail-wide monitoring protocols to track trends in physical and social impacts. The rationale for selecting Visitor Use as an indicator of the environmental health of the Appalachian Trail is straightforward: millions of people visit the Appalachian Trail each year, and collectively they have the potential to significantly affect the vegetation, soil, and water resources of the Appalachian Trail.



Don Owen

The Visitor Use group drafted the following two key monitoring questions:

- How is visitor usage affecting the vegetation, soils, water, and other natural resources of the Appalachian Trail?
- How is visitor usage affecting the satisfaction of other visitors on the Appalachian Trail?

The *Appalachian Trail Vital Signs Report* contains a brief overview of studies that have been conducted to evaluate the impacts of visitor use on the physical resources of the A.T. (See http://www.nature.nps.gov/im/units/netn/reports/reports_by_category.cfm?recID=Vital%20Signs). Numerous deficiencies in the condition of the Trail treadway and facilities have been identified in the Trail Assessments being conducted by the Appalachian Trail Park Office, the Appalachian Trail Conservancy, and the Appalachian Trail-maintaining clubs using the National Park Service's Facility Management System Software (FMSS). *Use and Users of the Appalachian Trail: A Sourcebook* by Manning, Valliere, et al (2000) examined several visitor satisfaction indicators. *Camping Impact Management on the Appalachian National Scenic Trail* by Jeff Marion (2003) describes protocols for evaluating physical impacts of overnight use.

The key indicators of Visitor Use include:

- Soil erosion, multiple treads, excessive root exposure, excessive width, wet or muddy soils, or standing water on the treadway of the Appalachian Trail
- Proliferation of visitor-created side trails to the Appalachian Trail
- Area of vegetation loss, area of exposed soil, tree damage, root exposure, campsite size, and number of campfire sites at overnight use areas along the Appalachian Trail
- Proliferation of "bootleg" campsites along the Appalachian Trail
- Extent of biological contamination (and, to a lesser degree, chemical contamination) of springs, other water sources, and soils at overnight use areas along the Appalachian Trail
- Levels of visitor satisfaction, crowding, and conflict

During the Friday breakout session, the Visitor Use working group and several other participants reviewed the working group's preliminary draft report, and identified priority indicators based on indicator accuracy and consistency, available resources, efficiency, and sustainability of the program. The group concluded that a two-prong monitoring program could provide enough data to draw conclusions about the physical and social impacts associated with visitor use and trends in visitor use impacts. Specifically, the group determined that an initial Visitor Use monitoring protocol could be developed by:

- Making minor adaptations to and utilize the FMSS process, in which ATC and Trail club representatives walk 400 miles of AT (20% each year) with a GPS unit, conducting both an inventory and a condition assessment. The adaptations would incorporate data fields for: proliferation of visitor-created trails and proliferation of bootleg campsites
- Incorporating two questions into the 2007 Visitor Count Survey from the 1999 visitor use survey being conducted by the USDA Forest Service Southern Research Station regarding quality of experience and crowding

These elements will provide an initial baseline of visitor use. Should additional resources be available, more detailed monitoring could take place by measuring campsite size at overnight use sites and depth of erosion on sections of the footpath.

The following points were addressed during the working group's discussion:

- Increased use of the Trail is anticipated due to baby boomers retiring and the possibility of an upcoming "Walk in the Woods" movie about the A.T. Should monitoring protocols be in place in advance of the movie? Is there a limit to numbers of visitors?
- As a conceptual approach, monitoring should focus on impacts. If those are beyond acceptable limits, then management prescriptions should be put in place.
- It is possible to have more people and less impact if the Trail is managed well.
- Potential funders will be interested in knowing how the information gathered will be used to fix problem areas, conduct statistical analyses to inform decision-making, continue monitoring (adaptive management), and spread the word to the public and Trail clubs.
- Conditions may not change but visitor perceptions of impacts may change significantly.
- Whether a stratified or a random survey design should be developed.



Participants of the A.T. Symposium exchanging information during the knowledge fair.

Funding can be obtained for this type of study because of its ability to describe resource and Trail conditions, guide management and response, improve Trail conditions, and reduce impacts on resources. In addition, this type of study is necessary for professionalizing management of resources and gauging the impact of the anticipated increase in visitor use associated with the baby boomers retiring and possible movie about the Trail.

If the working group moves toward the FMSS model for monitoring social impacts of visitor use, the following

actions need to be taken: (1) engage ATC field personnel and clubs in developing a workable sampling design; (2) ask one or two club members to conduct social impact surveys in addition to the FMSS condition assessment; (3) use a skip interval response card or follow up on the user count survey every five years; and (4) utilize long distance hikers and/or ridgerunners.

Recommendations for future actions include:

- Establishing baseline data on areas with unacceptable impacts
- Completing a literature search to determine what data already exists
- Proposing new data needs as part of a census on 54 two-mile segments (which would equal approximately 5% of the Trail)
- Conducting visitor surveys (“report card”) using standard survey conditions
- Developing a means of visually displaying resource condition and trends
- Condensing results to a one-page graphic depiction for a “State of the Trail” report

Water Quality

The Appalachian Trail transects many watersheds and traverses hundreds of streams, rivers, lakes, and ponds. The Water Quality working group was assembled to identify the value of using the Trail as a transect through the eastern United States as it pertains to water quality and water resource monitoring and to suggest a model by which high-quality data and resource assessments can be gathered and made systematically. Water quality monitoring enjoys a long history and tradition of volunteer engagement, and the working group considers citizen science an important part of any AT water program.

Since water quality was not included in the 2005 Appalachian Trail Vital Signs Report, this working group faced the daunting challenge of compiling an initial inventory of monitoring along the Trail. In the months prior to the symposium, the working group identified more than 40 past and on-going water monitoring datasets and programs that include water bodies adjacent to or near the Appalachian Trail. These programs involve a variety of organizations and purposes.

The Water Quality working group decided to concentrate on resources that are prevalent in the Appalachian Trail landscape and experience, such as high elevation tributaries and natural ponds and lakes along the Trail. Most water quality-related monitoring is done in the lower reaches of rivers or in lakes and ponds nearer more developed areas and therefore more susceptible to contamination issues with development. The value of an AT program lies in its ability to assess more background conditions of water before it is influenced by developed or populated areas. The group identified the following three focus areas for monitoring: visitor/public health issues, status of the water resources, and trends in water quality/water resources. The group recommended working with other A.T. Mega-Transect working groups to connect water monitoring activities with other indicators such as climate, air quality, birds, vegetation, and visitor usage. Citizen scientists and professionals will both serve an important role in these collaborative initiatives.

The group of symposium participants that met during the scheduled breakout session discussed a variety of water quality topics. One topic included what a water quality monitoring program should look like, including the role of citizen-scientists and research-driven professionals. The citizen science portion of the program should be directed by the Citizen Science working group and/or an educational institution to maintain quality. There was discussion of an event-related monitoring program whereby there would be scheduled “AT water quality days” on which large sets of snapshot information from all along the

Trail would supplement a lower-intensity periodic program. The merits of this idea include the potential for event publicity and high participation from the public.

The breakout group also discussed brook trout as a monitoring focal point for many headwater streams. Brook trout are the only native trout and are susceptible to subtle changes in water quality (acidification, eutrophication, etc.). However, most brook trout waters in the northeast have been polluted by stocked strains of trout and do not necessarily represent (genetically) the native trout population. On a cautionary note, the group addressed how brook trout monitoring can be expensive, intensive, and difficult to manage on a large scale.

It is likely that water quality and resources monitoring in the Appalachian Trail will follow a three-tiered approach that includes:

- Agency/professional – with direct access to expertise and technology. This is where USGS, NPS, etc. apply their resources.
- Existing programs – likely many ngo's involved with monitoring many different themes. These include state Audubon's, places like Hubbard Brook (NH), etc. Their respective programs may already include Trail land or could be easily extended. These efforts would be coordinated regionally, but included in Trail-wide reporting.
- ATC-led citizen programs – this is where Trail-wide programs like water and air quality (and perhaps others) would fit. These are simple, repeatable programs that supplement the data gathered in the other tiers but are sensitive to limitations in training levels and resources available.

Recommendations for future actions include:

- Add more southern Appalachian water quality professionals to the working group as well as datasets/programs to the initial inventory of monitoring along the Trail
- Determine comparability of existing programs and data and any opportunities to synthesize the data
- Coordinate a unified coalition of water quality monitoring that spans the Trail and develop an administrative framework
- Engage multiple organizations, agencies, researchers, and citizen scientists in monitoring many water issues and concerns
- Develop partnerships with organizations such as Trout Unlimited
- Coordinate an event-related monitoring program in which volunteers participate in water quality monitoring events once or twice per year. This would make the program easier to administer and may increase recruitment and engagement Trail-wide.
- Plan for funding the effort long-term

Thematic Working Groups

Prior to the symposium, the following three thematic working groups were established: Data Management, Citizen Science, and Policy and Public Awareness. As a result of the symposium, the Policy and Public Awareness working group was divided into two separate groups – Fundraising and Communications. Two additional groups were created to address governance of the A.T. Mega-Transect Program as well as education and community engagement. The diagram on page 6 clearly depicts this new structure, with the Communications, Fundraising, Governance, and Education and Community Engagement groups on the right side and more technical groups on the left side.

Please log onto the NBII Appalachian Trail Community portal and explore the Symposium 2006 Landmark Documents Project to view the powerpoint presentations given by the leaders of each thematic working group. In addition, all working group draft summary reports can be found in the Mega-Transect Working Groups Project.

Data Management

The Data Management working group served a cross-cutting function to support the other working groups by identifying ways to make data gathering easier. The group defined three distinct elements aimed at managing A.T. related data: develop a checklist to evaluate acquired datasets, evaluate ways to store and disseminate existing data, and establish standards for new data.

In terms of acquisition, storage, and dissemination, two broad strategies were identified: build from scratch a custom application to store acquired data; or, utilize an existing system. Each option has pros and cons. The Data Management working group determined that it was best to utilize existing systems that are based on accepted international requirements and specifications. As an example, the group presented a hierarchy that combined standards proposed by the Taxonomic Databases Working Group (TDWG) with a data acquisition component that linked with the Global Biodiversity Information Facility (GBIF). The



Ken Kimball

National Biological Information Infrastructure (NBII) is the GBIF node for the United States. The NBII can be used as a metadata clearinghouse and catalog of geospatial data, and has the capability to disseminate applications and spatial data layers through map viewers and other web services.

A variety of data management topics were discussed, including administration, distribution, synthesis, and data management.

One of the data management breakout session attendees proposed the idea of producing a report consisting of 1-2 pages per “environmental vital sign.” He advocated use of existing data to produce this report, and suggested using the Maryland Coastal Bays report as a model. The following issues/observations were discussed:

- Identifying the audience for the report along with their perceived needs
- Report would be based on a literature and data review, and would generate rankings with a scoring system for each ‘vital sign.’ Maps would be used to tell the story
- Need to make people aware that the A.T. Mega-Transect establishes a network for scientific research, both citizen based and professional, and presents a system for organizing and interpreting research information

Other issues and ideas discussed during the breakout sessions include:

- Data ownership: Who will own the data – the Mega-Transect or the researcher?
- Will we serve metadata only or will we rely on webs services to disseminate data?
- How will we handle the issue of many different ownerships, clubs, and management jurisdictions along the Trail?
- Discussed a multi-phase implementation. Phase 1 would involve obtaining and organizing existing data; later phases would address data requirements for newly commissioned projects and development of a web based data dissemination system
- Need to identify different data management models along with the requirements, strengths and weaknesses of each
- Adapt an existing “on-line” system to create an “A.T. Data Store.” Some existing data sets can be accessed in real time (for example, Global Forest Information System) with a standard template consisting of global community elements
- There are likely to be gaps between data contained in existing datasets and desired data.
- Intermediate tasks include storing data after initial analysis is complete, dealing with new data, providing minimum standards, and possibly assigning a graduate student to the A.T. Mega-Transect project
- Need to work with the Citizen Science working group to determine how citizen scientists will collect data and see results
- Partnership and coordination is essential, we need to be flexible enough to have several data management options
- Despite plan to rely on existing data via a web interface, some datasets may need to be directly acquired to ensure long-term availability
- Important to have a directory of existing initiatives along the Trail
- Data management plan should have roles and responsibilities clearly laid out

Future actions include:

- Ask other working groups what data they have and what they need
- Identify crucial data sets/sources and make sure they are not on the cut list, help protect those sources and make sure the data is archived
- Review National Phenological Network (NPN) and other data management plans from similar programs and draw useful information
- Create a question set to assist working groups in developing workflow and data sharing guidelines (guidelines will incorporate data management working group products such as legacy dataset checklist and database specifications)
- View the program from a ‘top-down’ approach to promote consistency
- Ensure the A.T. Mega-Transect program is not collecting data simply to collect data, but the data collected is useful
- Engage stakeholders with data management strategy and data oriented work flow

Citizen Science

To honor the Appalachian Trail’s strong history of volunteerism, A.T. Mega-Transect Program will integrate citizen science initiatives across all monitoring regimes. Citizen science provides a tool for collecting data on a large scale and in a timely manner, and supports collaborations between scientists and trail communities as well as a shared awareness of all involved. The Citizen Science working group was created to provide the Technical working groups with perspectives on the merits and methods of

pursuing a monitoring agenda in partnership with volunteers.

Monitoring several environmental variables along a 2,175-mile corridor is an ambitious goal that can likely only be accomplished with the assistance of volunteer researchers. Citizen science is a proven tool for large-scale data collection and for public education, but it is not a “magic bullet” and does require effort to mobilize and train volunteers and to develop an infrastructure for data analysis and sharing. Accomplishing a cross-cutting citizen science initiative as part of the A.T. Mega-Transect Program will require communication and collaboration across all working groups.



Jennifer Shirk, co-leader of the Citizen Science working group with Rick Bonney, gives a presentation of this working group’s progress.

Although the Appalachian Trail is steeped in over 80 years of volunteerism, the existing pool of volunteers is focused on Trail maintenance. Citizen science presents an opportunity to reach out to a broader pool of volunteers, engaging individuals with a diverse set of interests in the trail community and offering all new ways to understand and value the trail resources. Communities to explore include trail neighbors, schools, hikers (short and long distance), and the soon-to-retire generation of baby boomers who may provide a particularly rich pool of citizen scientists.

The symposium conversations addressed theoretical and procedural issues surrounding the involvement of volunteers in the A.T. Mega-Transect monitoring agenda. One goal is to link existing programs to fit the needs of the A.T. Mega-Transect Program. Prior to the symposium, the Citizen Science working group created a list of existing citizen science initiatives for other working groups to review. The Cornell Lab of Ornithology’s eBird project was highlighted as a model citizen science infrastructure. Participants in the Friday and Saturday breakout groups proposed several other research opportunities that may appropriately incorporate citizen science. Such programs include vegetation mapping (citizens check community boundaries and verify the community type), alpine plant phenology, as well as forest health and butternut disease monitoring. If new programs are developed to fill in missing gaps, then human resources also need to be provided to handle the workload.

One citizen science breakout session brainstorm focused on additional outside partnerships that may be worth exploring in support of citizen science along the Appalachian Trail. Potential partners could include Master Naturalists, Parks as Classrooms, and destination-travel programs such as those sponsored by the Sierra Club, Earthwatch, or corporate community service initiatives. Collaboration with the Cooperative Ecosystems Studies Unit Network (CESU) may be particularly worth exploring as CESU similarly integrates multiple federal agencies to address natural and cultural resource issues. Regionally-focused and university-based, CESUs may be interested in the potential of the corridor initiative, and could serve as a resource to help standardize the research conducted by volunteers. In addition to all opportunities for collaboration it is necessary to remember that the Appalachian Trail is a brand name itself, and its value can be used effectively to leverage partnerships and support.

Experienced practitioners of citizen science at the symposium re-emphasized many of the recommendations made in the working group’s preliminary document. It is important to understand the

audience's capacity when choosing a research question. Data management and training are required for citizen science to work effectively. While volunteers cannot replace paid employees, they should be respected by being involved only when needed to gather useful data, and should be provided with a meaningful research experience. A similarly respectful means for ensuring and/or identifying quality data is necessary.

Face-to-face contact can be key for volunteer engagement and retention, and personal feedback via a newsletter or website is critical to maintain momentum. While volunteer attrition can be expected, identifying and tapping into subcultures can be a particularly effective recruitment strategy. Encouraging more people to engage in the A.T. Mega-Transect effort, must be balanced with the potential impact of monitoring (particularly group monitoring) on the Trail. Particularly considering the Appalachian Trail's unequal distribution of accessible sites, monitoring initiatives must determine whether to focus on the entire corridor or on representative locations.

Recommendations for future actions:

- Expand current list of existing citizen science initiatives
- Select a citizen science representative to reside on each working group
- Determine the key needs of each working group so the Citizen Science working group can effectively fulfill their cross-cutting role
- Inform clubs of the broader A.T. Mega-Transect initiative using a clear message, select one entity charged with keeping the clubs (and land managers) updated
- Develop an application process for existing and new citizen science initiatives (review applications and approve or decline vs. accept all applications willing to use our set protocols)
- Create a website showing programs where citizen scientists can get involved, use website to educate citizens and possibly as a portal to submit data gathered
- Explore what draws volunteers to the Trail and reach out to different interests, develop a way to thank volunteers for their efforts
- Recruit students and pay them to help with the A.T. Mega-Transect effort (these students would not be considered citizen scientists)
- Adapt or design one pilot, flagship, Trail-wide, citizen science initiative
- Contact researchers regarding ideas for citizen science projects along the Trail

A full time coordinator is needed to manage citizen science along the Appalachian Trail and look into data quality, means for improvement, appropriateness, and other critical issues. Economic support for the citizen science initiative is necessary for sustainability.

Policy and Public Awareness

The Policy and Public Awareness breakout group recommended changing the group's name and dividing into two separate groups – Fundraising and Communications. This recommendation was made to emphasize the need for the A.T. Mega-Transect Network to develop a universal message and strategy for communications as well as to coordinate fundraising. It also ensures broad participation in the A.T. Mega-Transect Program, responding to concerns from agencies and organizations with mandates to avoid advocacy. Thus, the A.T. Mega-Transect Network will be a monitoring network, gathering and disseminating information. It is assumed advocacy and policy work will be catalyzed and informed by the A.T. Mega-Transect, but such work will be pursued separately by action-networks such as the Eastern Forest Partnership, Hikers for Clean Air, etc.

The twenty-two contributors to this group provided the following framework for the Fundraising and Communications groups:

Fundraising

The Fundraising committee will be tasked with securing funding for the A.T. Mega-Transect Program. The Appalachian Trail Conservancy will need financial and staff assistance from the National Park Service, U.S. Geological Survey, and other collaborative partnerships to move the A.T. Mega-Transect Program forward.

Several steps have already been taken to address these gaps in financial and staff resources. The National Park Service Northeast Inventory and Monitoring Network plans to hire an A.T. Vital Signs Coordinator in 2007. In addition, the Appalachian Trail Conservancy has proposals for additional funding and resources currently being reviewed and is actively seeking the involvement of other institutions who may be interested in funding A.T. Mega-Transect Programs.

Recommendations for future action include:

- Map the social networks of members to reach new donors and produce the biggest impact
- Research ways to connect corporate sponsors with the A.T. Mega-Transect (social, geographical, biological, etc.)
- Ensure that funding is used to increase conservation of the A.T.
- Emphasize the uniqueness of the A.T. and the Mega-Transect Network when writing proposals to apply for bigger grants and more visionary projects

Communications

The Communications committee will be tasked with gathering the results from the technical working groups and effectively disseminating this information to the A.T. Mega-Transect network as well as the general public. Further, they are mandated to draw together interested network members and other expertise as required to develop core messages, clarify critical audiences, and determine and guide the development of A.T. Mega-Transect communication products for across the network. The A.T.'s iconic status and potential to contribute to scientific understanding can be used to convey a powerful message.

This Communications breakout group addressed a variety of topics, such as the use of existing products (the National Parks Conservation Association's State of the Parks assessment and report, the Eastern Forest Partnership's outreach to grassroots groups, and National Geographic various print and online publications, etc.) as models for public relations outreach avenues. Other topics of conversation focused on how the A.T. Mega-Transect interfaces with land use influences, consequences of climate change, and possibly the best depiction of humanity



Keynote speaker Mike Fay, National Geographic's Explorer in Residence, coined the term "mega-transect" during his work in Africa and defines it as a scientific study over a large geographic area.

intersecting with nature. Thus, the A.T. Mega-Transect can serve as a valuable tool to change behavior and increase funding to support conservation.

In addition, the group emphasized the importance of local media outlets that touch people's personal lives. The stories need to be pitched clarifying why this matters to the reader and using big, top down messages that address the value of the A.T. as a barometer of the health of the environment. This type of pitch will engage non-hikers as well as hikers. The Communications group plans to target Trail users, Appalachian Trail Conservancy members, and the general public via media releases. Michael Fay, the symposium keynote speaker, volunteered to write an Op-ed newspaper article urging humanity to wake up and take action and emphasizing how the A.T. Mega-Transect presents an ideal opportunity to motivate Americans toward conservation.

An Associated Press story was picked up by approximately 200 newspapers worldwide (including the New York Times and Washington Post) beginning November 24, 2006. The story was also posted on several major network web sites (ABC, NBC, CNN, etc.). In addition, The Roanoke Times published a series of four articles about the A.T. Mega-transect. These articles generated interest and enthusiasm among people throughout the country, and prompted over 50 individuals to volunteer for Mega-Transect projects within three weeks of publication.

Recommendations for future action include:

- Design a logo for the A.T. Mega-Transect to use for marketing purposes
- Clarify audience and refine message, understand that the transect does not sell itself
- Obtain pro-bono expertise to develop an ongoing media and communications plan to reach the largest and most significant audience
- Encourage people to use the internet-based NBII portal as a communication tool, post a list of existing resources and events on NBII and use this list for outreach
- Develop a main public website for the Mega-Transect - options include an NBII public interface, pages on ATC's website, and adding to special projects on the National Geographic website. Coordinate the Mega-Transect content of partners' websites to the extent possible through links, etc.
- Inform Appalachian Trail clubs of the symposium results and next actions
- Identify and use creative programs (such as sabbatical programs) to supplement capacity in critical areas
- Change the name "Mega-Transect" to something sexier and more intuitive, suggested using ME to GA instead.

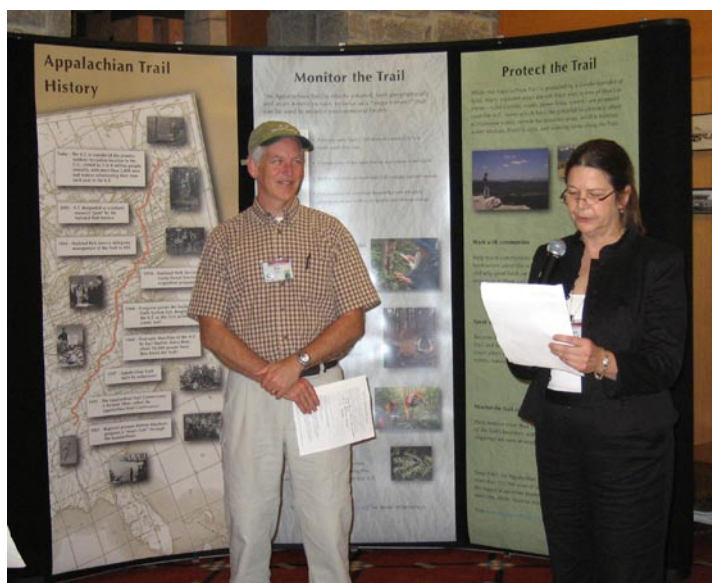
IV. Conclusion

The symposium successfully tested the concept of using the Appalachian Trail as a mega-transect, generating a great deal of enthusiasm and momentum among participants as well as citizens and institutions across the country. (Please refer to Appendix 3 for an updated list of institutions interested in partnering with the A.T. Mega-Transect Program.) We appreciate all of your hard work in helping to shape this idea into a reality.

We are now faced with the important task of channeling this enthusiasm into productive future actions. Over the next year we need to refine data collection guidelines for effective sharing within the new partnership, pulling together existing data to inform us of the environmental health of the Trail and collecting new data to fill existing gaps. We also need to develop methods of recruiting, training, and organizing a corps of citizen scientists to conduct environmental monitoring, as well as organize university and other researchers to analyze the results over time. Finally, we need to effectively communicate these results out to the American public. Securing funding from private and public sources to further support the A.T. Mega-Transect Program will be critical to reaching these objectives.

The symposium inspired many participants to announce personal and institutional pledges for future action during Saturday's closing session. The following is a summary of the pledges:

- *NPS Northeast Inventory & Monitoring Network*: Hire a National Park Service A.T. Vital Signs Coordinator in 2007
- *NPS Appalachian Trail Park Office*: Provide a home for the A.T. Vital Signs Coordinator; actively participate in formulation of an A.T. Mega-Transect Charter in 2007; invite USGS to co-locate an A.T. liaison for one or more days a week in the A.T. Park Office; prepare a NPS Centennial Program funding request to seek major funding for the A.T. Mega-Transect; work with potentially affected USDA Forest Service personnel to ensure they have ample opportunity for full input and engagement and are comfortable with the project; meet with USGS in Reston to sort out potential partnering opportunities with respect to launching the Mega-Transect; and help Mike Fay with logistics and support if he decides to hike a portion of the A.T.
- *Appalachian Trail Conservancy*: Focus on communications and publicity; educate and engage ATC membership and Appalachian Trail clubs; encourage federal and state policy makers, A.T. volunteers, and members of the public to "Join the Journey"
- *National Geographic Society*: Create a large printed format map; Map-driven



Pam Underhill shares her vision to engage 10 million children in the NPS/ATC Trail to Every Classroom program while Roger Moore looks on during Thursday evening's interactive storytelling program.

website; A.T. photo project; and Milestone or waypoint project

- *U.S. Geological Survey*: Define role and involvement with the A.T. Mega-Transect, possibly secure funding for the data management working group initiative
- *NASA*: Provide a collection of satellite images along the Appalachian Trail
- *Cornell University*: Explore use of photography for citizen science and cultural aspects of the A.T. Mega-Transect program
- *Pennsylvania Bureau of Conservation and Recreation*: Define role and involvement with the A.T. Mega-Transect
- *University Professors*: Explore the option of a sabbatical related to the A.T. Mega-Transect
- *The Roanoke Times*: Continue publishing articles about the A.T. Mega-Transect

“I have loved waking up every morning thinking about the potential of this emerging network and the impact of our A.T. Mega-Transect. I’m looking for the best way to continue to contribute to this effort.”

- Cindy Dunn, Pennsylvania Bureau of Conservation and Recreation

These pledges illustrate the spirit of this new partnership for the A.T. Mega-Transect. Partners in the A.T. Mega-Transect are joining a long and unique tradition of collaboration between government agencies of all levels and non-profit groups of both local and national stature. Such cooperation has enabled the creation of the Appalachian Trail and its protection and maintenance to this day. We trust that this new partnership will join this long-standing, remarkably successful collaboration and bring awareness and protection of the Trail to a new level.

APPENDIX 1: Symposium Participants

Laura Belleville, Appalachian Trail Conservancy
 Tom Burley, University of Tennessee, National Biological Information Infrastructure
 Patrick Campbell, National Park Service, National Capital Region
 Sonja Carlborg, Appalachian Trail Conservancy
 Allen Carroll, National Geographic Maps
 James Comiskey, National Park Service
 John Cramer, The Roanoke Times
 Fred Dieffenbach, National Park Service, Northeast Temperate Network
 Sam Droege, United States Geological Survey Patuxent Wildlife Research Center
 Caroline Dufour, Appalachian Trail Conservancy
 Cindy Dunn, Pennsylvania Bureau of Conservation and Recreation
 Alan Ellsworth, National Park Service
 Duncan Fairlie, National Aeronautics and Space Administration
 Steven Fancy, National Park Service
 Michael Fay, The Wildlife Conservation Society, National Geographic Society
 David Field, Maine Appalachian Trail Club/Appalachian Trail Conservancy
 Jean Freeney, U.S. Geological Survey, National Biological Information Infrastructure
 Robert Fuller, North Georgia College and State University
 Gary Geller, National Aeronautics and Space Administration
 Royce Gibson, Appalachian Trail Conservancy
 John Gross, National Park Service
 Mark Hall, NatureServe
 Peter Irvine, USDA Forest Service
 Mike Jenkins, Great Smoky Mountains National Park
 Beth Johnson, National Park Service
 Richard Judy, Appalachian Trail Conservancy
 Kenneth Kimball, Appalachian Mountain Club
 Brian King, Appalachian Trail Conservancy
 Dan Lambert, American Bird Conservancy/Vermont Institute of Natural Science
 Spring Ligi, Appalachian Trail Conservancy
 Jeffrey Marion, U.S. Geological Survey, Patuxent Wildlife Research Center, Virginia
 Tech Field Station
 Christopher Mattrick, White Mountain National Forest
 James McNeal, U.S. Geological Survey
 Marcia McNiff, U.S. Geological Survey, National Biological Information Infrastructure
 William McShea, Smithsonian Institution
 David Meriwether, USDA Forest Service, Southern Region
 Hawk Metheny, Appalachian Trail Conservancy
 Gregory Miller, American Hiking Society
 Michele Miller, Appalachian Trail Conservancy
 Brian Mitchell, Northeast Temperate Inventory and Monitoring Program, National Park Service
 Roger Moore, North Carolina State University, Appalachian Trail Conservancy

Theresa Moore, Northeast Temperate Inventory and Monitoring Program, National Park Service
James Nations, National Parks Conservation Association
Mari Omland, Appalachian Trail Conservancy
Don Owen, Appalachian National Scenic Trail, National Park Service
John Peine, U.S. Geological Survey, Southern Appalachian Field Lab
Casey Reese, Appalachian National Scenic Trail, National Park Service
David Reynolds, National Park Service
Keith Robinson, U.S. Geological Survey, New Hampshire –Vermont Water Science Center
Matt Robinson, Appalachian Trail Conservancy
Nick Salafsky, Foundations of Success
Scott Schlarbaum, Department of Forestry, Wildlife & Fisheries, The University of Tennessee
Kent Schwarzkopf, Appalachian National Scenic Trail, National Park Service
Jennifer Shirk, Department of Natural Resources, Cornell Laboratory of Ornithology
Greg Shriver, University of Delaware
Brad Smith, USDA Forest Service
Tom Smith, Virginia Division of Natural Heritage
Lesley Sneddon, National Park Service
Michael Soukup, National Park Service
Mark Stanley, Appalachian Trail Conservancy
David Startzell, Appalachian Trail Conservancy
Matt Stevens, Appalachian Trail Conservancy
Kenneth Stolte, USDA Forest Service
Julie Thomas, National Park Service
Geraldine Tierney, SUNY College of Environmental Science and Forestry, National Park Service Northeast Temperate Network Collaborator
Pamela Underhill, Appalachian National Scenic Trail, National Park Service
Doug Weihrauch, Appalachian Mountain Club, Research Department

APPENDIX 2: A.T. Mega-Transect Network Members

James Akerson, National Park Service
 Brent Bailey, The Mountain Institute
 Keith Bildstein, Acopian Center for Conservation Learning, Hawk Mountain Sanctuary
 Rick Bonney, Cornell Lab of Ornithology
 Doug Boucher, Hood College
 Scott Boven, The Nature Conservancy in Virginia
 Andy Brown, Equinox
 Douglas Burns, U.S. Geological Survey
 Gabrielle Canonico, U.S. Geological Survey, National Biological Information Infrastructure
 Wendy Cass, Shenandoah National Park
 Mark Christmas, National Geographic
 Terry Cook, The Nature Conservancy
 Gary Cummins, Retired National Park Service
 Jeff Deacon, U.S. Geological Survey
 Bill Dennison, University of Maryland
 Paul Dolan, ABC News
 Cliff Duke, The Ecological Society of America
 Joan Ehrenfeld, Rutgers University
 Ivan Fernandez, University of Maine at Orono
 Brian Fitzgerald, Appalachian Trail Conservancy
 Estrellita Fitzhugh, Independent
 Hank Foster, Retired Harvard Environmental and Natural Resources Program Research Fellow
 Robert Gardner, Chesapeake Watershed CESU
 James Gibbs, State University of New York - College of Environmental Science and Forestry
 Tom Gilbert, The Wilderness Society
 Edward Goodell, New York-New Jersey Trail Conference
 Richard Guldin, USDA Forest Service, Research, and Development
 Paul Green, Audubon Society
 Dave Harmon, The George Wright Society
 Claire Harper, USDA Forest Service, Forest Legacy Program
 Glenn Holcomb, U.S. Geological Survey
 Elizabeth Johnson, American Museum of Natural History
 John Jones, U.S. Geological Survey
 Rebecca Jordan, Rutgers University
 Julie Judkins, Appalachian Trail Conservancy
 Steve Kahl, Center for the Environment
 Steve Kelling, Cornell Lab of Ornithology
 David Kirschtel, Northeast Organic Network
 Rand Knight, American Institute of Biological Sciences
 Kevin Knobloch, Union of Concerned Scientists
 Keith Langdon, Great Smoky Mountains National Park
 Chris Lea, Assateague Island National Seashore
 Brandon League, National Biological Information Infrastructure
 Bob Leggett, Appalachian Trail Conservancy, Robert and Dee Leggett Foundation
 Jim Levitt, Harvard University, Harvard Forest

Ronald Litwin, U.S. Geological Survey, Eastern Earth Surface Processes Team
 Mark Madison, FWS National Conservation Training Center
 Connie Mahan, Audubon Society
 Tonnie Maniero, National Park Service
 Elizabeth Martin, U.S. Geological Survey, National Biological Information Infrastructure
 Catherine McCue, Southern Environmental Law Center
 Edwin McGowan, Palisades Interstate Park Commission, New York State Office of Parks,
 Recreation, and Historic Preservation
 Peter McKinley, Main Appalachian Trail Club
 Bradie Metheny, Appalachian Trail Conservancy
 George Minnigh, Great Smoky Mountains National Park
 Steve Monfort, Smithsonian Institution
 Celina Montorfano, American Hiking Society
 Nora Murdock, National Park Service, Appalachian Highlands Network
 Georgia Murray, Appalachian Mountain Club
 Sarah Nelson, University of Maine, Mitchell Center
 Shawn Norton, National Park Service
 Gordon Olson, National Park Service
 Robin O'Malley, The Heinz Center
 Kevin Peterson, Vermont Community Foundation and New Hampshire Charitable Foundation
 Bob Pickett, Potomac Appalachian Trail Club
 Bob Proudman, Appalachian Trail Conservancy
 Michelle Prysby, Virginia Cooperative Extension
 John Randall, The Nature Conservancy
 Jack Ranney, University of Tennessee
 Jim Renfro, National Park Service
 David Reus, Appalachian National Scenic Trail, National Park Service
 Terrell Rich, U.S. Fish and Wildlife Service, Partners in Flight
 Taylor Ricketts, World Wildlife Federation
 Rick Ridgeway, Patagonia
 Susan Sachs, Great Smoky Mountains National Park
 Holly Salazer, National Park Service
 Ann Shahid, Audubon South Carolina
 Ted Simons, U.S. Geological Survey
 Curtis Smalling, Audubon North Carolina
 Ted Smith, Kendall Foundation
 Morgan Sommerville, Appalachian Trail Conservancy
 Sacha Spector, American Museum of Natural History
 Eleanor Sterling, American Museum of Natural History
 Paul Super, Appalachian Highlands Science Learning Center at Purchase Knob
 Ione Taylor, U.S. Geological Survey
 Molly Theobald, Appalachian Regional Commission
 Alan Thornhill, Society for Conservation Biology
 Hague Vaughan, Environment Canada
 Y.Q. Wang, Department of Natural Resources Science, University of Rhode Island
 John Waugh, IUCN- The World Conservation Union
 Sandy Whidden, East Stroudsburg State
 Peter White, University of North Carolina

APPENDIX 3: Join the A.T. Mega-Transect Program

The APPALACHIAN TRAIL MEGA-TRANSECT



Our goal is to establish the Appalachian Trail Mega-Transect so that scientists, land managers, and volunteer leaders can effectively manage the Appalachian Trail's wealth of natural resources and "tell the story" of the environmental health of the Appalachian Mountains to visitors, neighbors, and the world.

We are committed to understanding the environmental health of the Appalachian Trail. Our goal is to inform key decision makers, and to encourage the actions that are necessary to protect the Trail. We believe that volunteers should be involved in environmental monitoring efforts along the A.T. Because our combined efforts will have more impact, we are actively seeking other individuals and institutions to join us and contribute to this exploration of the Appalachian Trail Mega-Transect.

The objectives of the Appalachian Trail Mega-Transect are:

- To determine the current status and trends of natural resources along the Trail and to make sound decisions, encourage collaboration, and promote public understanding of this process.
- To provide early warning of undesirable conditions or trends as a means of better protecting the Trail's natural resources and reducing the costs of management.
- To promote the transformation of shared data to knowledge and understanding through accurate analysis and modeling.

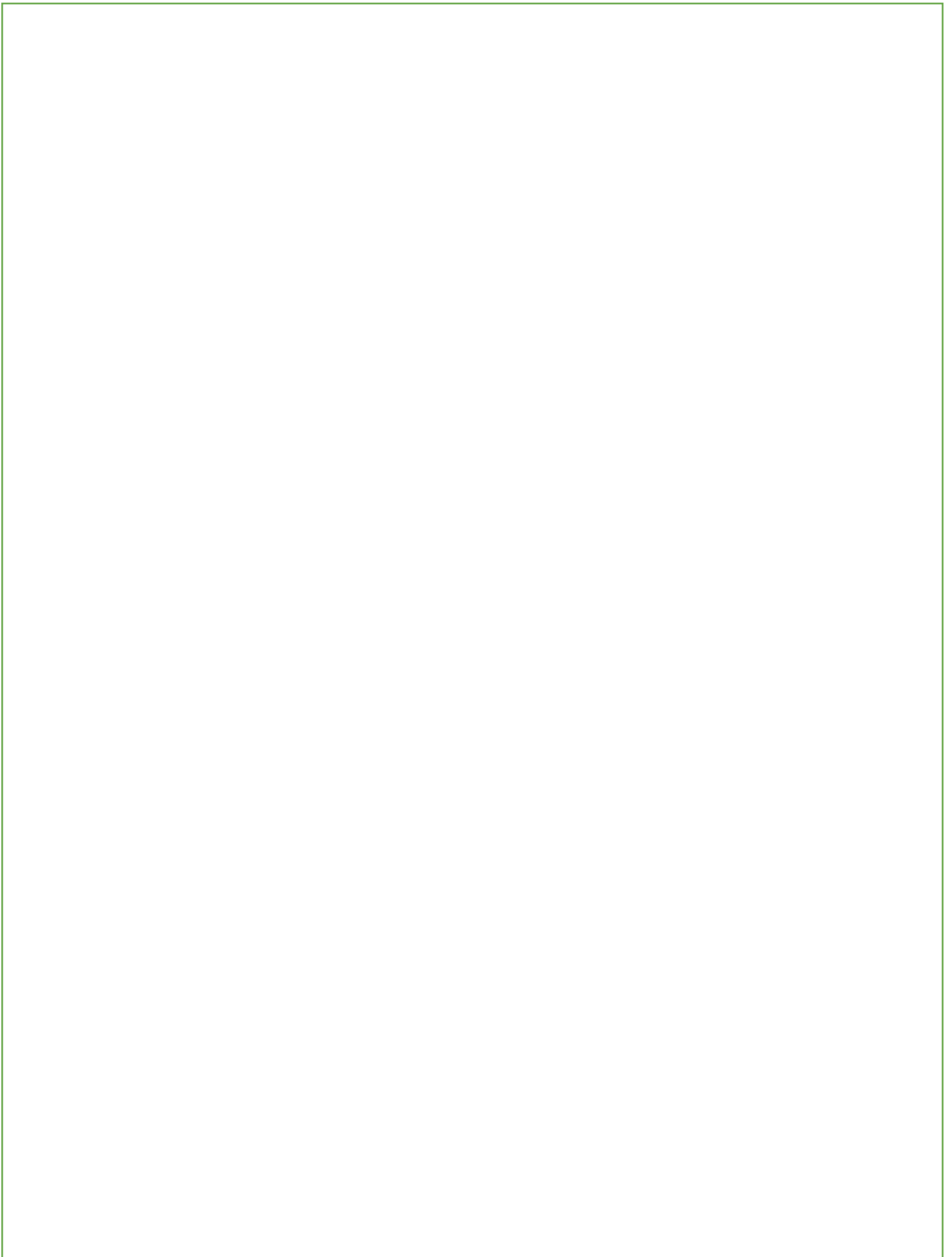
We invite organizations and individuals to sign below to indicate their interest in participating in the Appalachian Trail Mega-Transect.

Some of these organizations will formalize a more significant commitment by signing a Partnership Charter.

Logos indicate an expression of interest. To indicate your support of the Appalachian Trail Mega-Transect, please send your organization's logo (in a 72 DPI jpeg file no larger than 2x2 inches and provide a current URL, if available) or just your individual name to ATMega-Transect@appalachiantrail.org where you are also encouraged to direct any questions or comments.

Join the Journey!





APPENDIX 4: Symposium Agenda

EXPLORING THE APPALACHIAN TRAIL AS AN ENVIRONMENTAL MEGA-TRANSECT: UPDATED AGENDA

November 9-11, 2006
National Conservation Training Center
Shepherdstown, WV



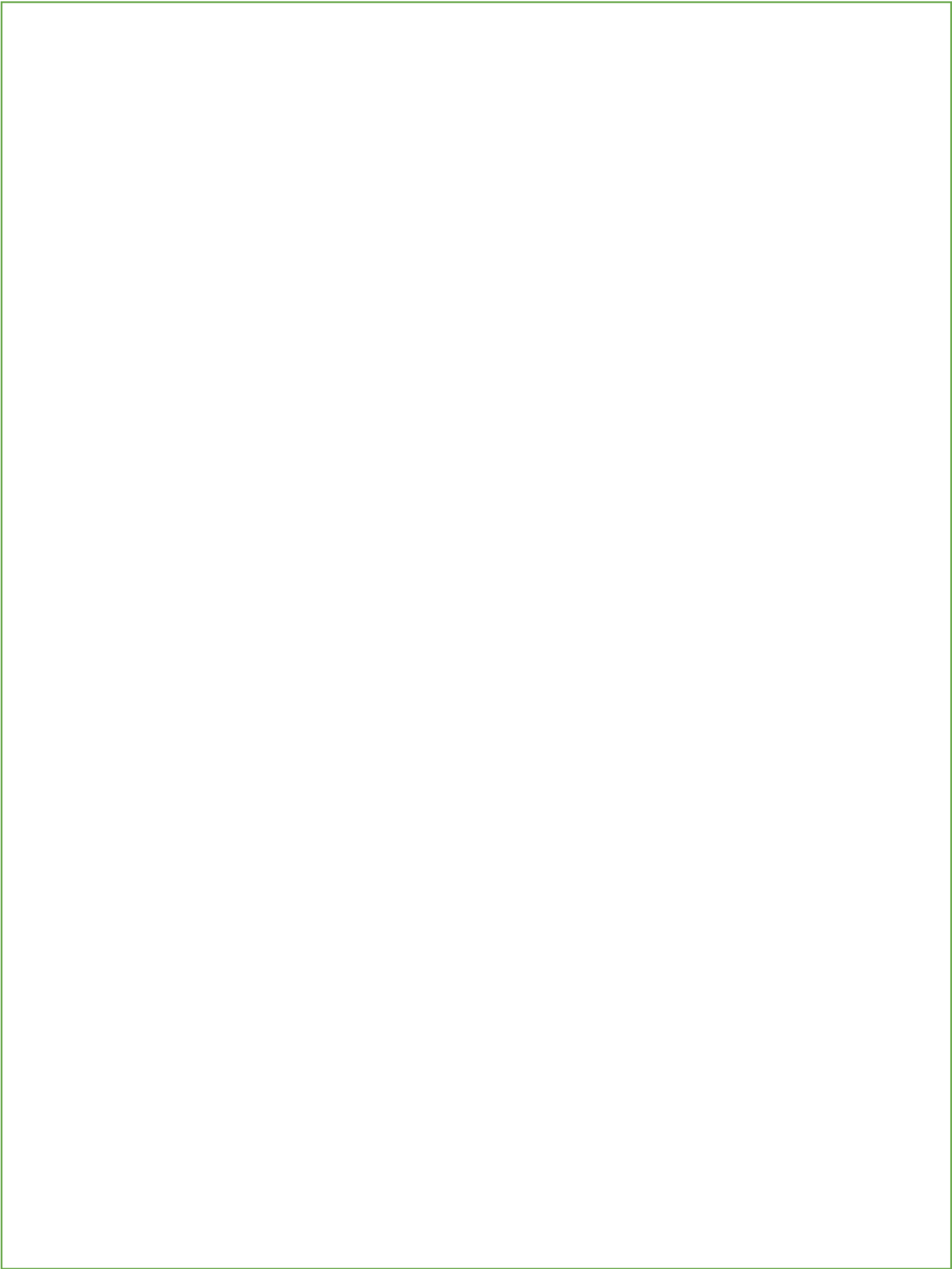
AVEDA



Thursday, November 9 : Introduction and Overview	
12:00 pm – 12:50 pm	LUNCH – Commons Dining Room
1:00 pm – 4:00 pm	<p>Opening Session – Room 160 IW</p> <ul style="list-style-type: none"> Welcome from the Appalachian Trail Conservancy by Executive Director David Startzell Welcome from National Park Service by Michael Soukup, Associate Director for Natural Resource Stewardship and Science Welcome from USDA Forest Service by David Meriwether, Ecosystem Management Coordinator Welcome from U.S. Geological Survey by James McNeal, Geologist <p>Participant Introductions and Expectations</p> <ul style="list-style-type: none"> Nick Salafsky, Co-director of Foundations of Success, will facilitate the introductory session and provide an overview of workshop activities and logistics <p>Overview of Existing Work</p> <ul style="list-style-type: none"> <i>History of the Appalachian Trail</i> – Don Owen, Environmental Protection Specialist, National Park Service Appalachian Trail Park Office <i>Why a Mega-Transect?</i> – Pamela Underhill, Park Manager, National Park Service Appalachian Trail Park Office <i>Background on NPS and A.T. Environmental Monitoring</i> – Brian Mitchell, Inventory and Monitoring Coordinator, National Park Service Northeast Temperate Network <i>The Challenge Going Forward</i> – Steven Fancy, National Monitoring Program Leader, National Park Service <i>Introduction to the Partnership Charter and Technical Guidelines</i> – Mari Omland, Director of Conservation, Appalachian Trail Conservancy and Nick Salafsky
2:30 pm BREAK	
4:00 pm – 5:30 pm	<p>Knowledge Fair – Roosevelt Room</p> <p>Participants will have the opportunity to exchange information about their current work on topics relevant to environmental monitoring along the A.T.</p>
5:30 pm – 7:20 pm	BREAK AND DINNER – Commons Dining Room

7:30 pm – 8:30 pm	Refining our Collective Vision for the Appalachian Trail Mega-Transect – Roosevelt Room Mari Omland will facilitate an informal, interactive program to continue networking from the Knowledge Fair and build community among participants.
Friday, November 10 : Advancing the Monitoring Program Essentials	
6:30 am – 8:20 am	BREAKFAST – Commons Dining Room
8:30 am – 12:00 pm 9:30 am BREAK	Objectives and Technical Specifications for the Program – Room 160 IW Overview and Discussion of Draft Technical Guidelines <ul style="list-style-type: none"> • Overview of Technical Guidelines - Brian Mitchell • Discussion led by Nick Salafsky Working Group Presentations <ul style="list-style-type: none"> • Air Quality and Climate • Birds • Vegetation • Visitor Usage • Water Quality • Data Management • Citizen Science • Policy and Public Awareness
12:00 pm – 12:50 pm	LUNCH – Commons Dining Room
1:00 pm – 3:00 pm 2:45 pm BREAK	Convene for Directions and then Move to Breakout Sessions – Room 160 IW Participants will be invited to discuss and provide course corrections and comments on the work done to date, helping to identify gaps as well as opportunities. Working groups will be given the chance to begin consolidating the feedback during the last half of the session. <ul style="list-style-type: none"> • Room 160 IW – Air Quality and Climate • Room 159 IW – Policy and Public Awareness • Room 140 IW – Vegetation • Room 136 IW – Visitor Usage • Room 124 IW – Citizen Science and Data Management • Room 115 IW – Birds and Water Quality
3:00 pm – 4:00 pm	NBII Instructional Sessions <ul style="list-style-type: none"> • Room G24 IE – Beginner • Room 147 IE – Beginner • Room G30 IE – Intermediate/Advanced

4:00 pm – 5:00 pm	Mini-Technical Workshops on Virtual Tools and Resources Participants will choose one of the following two workshops to attend: <ul style="list-style-type: none"> Room 160 IW – This workshop will focus on the following topics: an interagency protocol library and monitoring locator tools, online resources relevant to A.T. monitoring that are available from the National Park Service, and an update on the National Phenological Network. This workshop will be presented by Steven Fancy. Room 115 IW – This workshop will focus on how the Appalachian Trail Cooperative Management System works, including an overview of the following topics: land ownership patterns, land management responsibilities, relationships among key Trail management partners, field-based research and permitting along the AT, as well as available GIS and data support. This workshop will be presented by Don Owen.
5:00 pm – 6:50 pm	BREAK AND DINNER – Commons Dining Room
7:00 pm	Keynote Address – Byrd Auditorium Michael Fay, Ecologist with the Wildlife Conservation Society and Explorer-in-Residence for National Geographic to present <i>The long walk and the art of Megatransecting: The Appalachian Trail Mega-Transect</i> .
Saturday, November 11 : Exploring Partnerships and Next Steps	
6:30 am – 8:20 am	BREAKFAST – Commons Dining Room
8:30 am – 9:00 am	Charter and Next Steps Going Forward – Room 160 IW <ul style="list-style-type: none"> Overview of draft Charter – Don Owen Discussion led by Nick Salafsky
9:00 am – 10:30 am 10:20 am BREAK	Convene to Breakout Sessions; Planning for the Future Facilitated breakout sessions will further explore Program needs and next steps regarding coordination, public relations, funding, and participant commitments. <ul style="list-style-type: none"> Room 160 IW – Citizen Science Room 140 IW – Steering Committee and Partnership Charter Room 136 IW – Data Management Room 124 IW – Fundraising and Public Relations Room 115 IW – Working Group Coordination
10:30 am – 12:00 pm	Reports from Breakout Sessions, Announcements of Future Action, and Closing Addresses– Room 160 IW <ul style="list-style-type: none"> Participants will be encouraged to state 2 or 3 next steps they plan to take after the symposium Closing Addresses by David Startzell and Pamela Underhill
12:00 pm – 1:00 pm	LUNCH – Commons Dining Room Carry-out containers are available upon request



APPENDIX 5: ATC Press Release

FOR IMMEDIATE RELEASE

TRAIL MANAGERS EXPAND PARTNERSHIP TO MONITOR ENVIRONMENTAL CHANGES ALONG THE APPALACHIAN TRAIL

HARPERS FERRY, W.Va.—The Appalachian Trail Conservancy (ATC) and its major federal partners have decided to enlarge several ongoing land-management programs into a long-term collaborative project to comprehensively monitor changes in the mountain and valley environments through which the famed, 2,174-mile footpath meanders.

The purpose of the project, expected to launch in mid-2007 as a partnership with other nonprofit organizations and scientific agencies, is fourfold:

- To understand the changes in air and water quality and the health of the plants and animals within the 250,000 acres of public lands associated with the trail.
- To more effectively protect that land's natural resources.
- To foster public appreciation for nature generally and conservation of the Appalachian Trail specifically.
- To better tell the story of the status of the health of the Appalachian Trail's lands to visitors, trail neighbors in 14 heavily populated eastern states, and the general public.

"This project has the potential to support every facet of our mission as it has evolved over the course of 81 years," says David N. Startzell, executive director of the trail conservancy. "That includes our traditional work as trail-builders and maintainers and our work during the past 30 years through a remarkable public/private partnership that has conserved nearly 200,000 acres, as well as our rich heritage of volunteer-based stewardship.

"And, it is a potent means to pull together many things we and our affiliated clubs have only recently initiated in reaching out to school children and neighboring communities."

"Protection of the trail and the hiking experience for which it exists has always been our principal mission. A quarter-century of citizen-based land-management experience has taught us, however, that 'protection' today means more holistic monitoring of *everything* going on in those woods and everything having an impact, from the boundaries in," he added.

"Four generations of hikers have gone to the Appalachian Trail for a particular experience. That's why ATC has sought—and achieved—a buffer of public lands since 1935. That experience is largely defined by the *place* in which it happens, and the fact of the matter is that the footpath we love and its shelter sites take up one-quarter of one percent of the land we are committed to protect and maintain for all generations to come.

"Recent satellite images shared by NASA and taken over a period of three decades show us that some things are definitely happening to that land, especially the forests. The surrounding 'urbanization' and

breaking (and remaking) of habitat is obvious, but we need to know more about the impacts and causes of those and other changes on wildlife and air and water quality if we are going to properly protect the resources behind that hiking experience. And, we need this kind of expanded partnership to do it, because neither we and the clubs nor our traditional agency partners can do it alone,” he concluded.

The framework of the project was developed during a three-day symposium in early November at a U.S. Fish and Wildlife Service training facility near Shepherdstown, W.Va. The concept behind it is adapted from a 1997 “mega-transect” of central Africa undertaken by National Geographic Society explorer-in-residence Michael Fay—a walk of more than 2,000 miles to document the health of plants and animals in blocks of pristine forest and fostered a chain of 13 national parks.

Fay told the symposium that transecting is what nineteenth-century explorers did: systematic collection of data on landscapes and species. Climate change underway today “is perhaps the greatest challenge in our history,” Fay said, and the north-south path of the A.T., “an icon in this country,” is an excellent setting for collecting relevant, scientifically valid data on “where we’re going as a country.”

Such a project should look at perhaps 50 variables—“and everything goes in your notebook”—so that, over time, the relationships among variables, including the cultures of those who live nearby, can be seen, Fay told an evening audience of about 150. Observations by walkers could be more valuable than some researchers’ myopia, he suggested.

“The Appalachian Mountains have been exploited for its resources for centuries—we’ve destroyed that ecosystem several times. In the 21st century, it’s a great focal point for educating people to ecosystems’ resiliency,” he added.

Startzell agrees. “Because we’re in everyone’s way,” the major threats to the trail as a place for relatively primitive backcountry recreation—highway expansion, huge power lines, encroaching developments—“are not going to go away,” he told the 65 participants at the opening session. “But, if citizen-scientists and neighboring communities join with our existing 5,500 volunteers and become engaged in this project, the trail can serve as a classroom for learning and can motivate students to take action in defense of our environment.”

During the 1990s, the trail conservancy, working with state agencies, took inventories of rare, threatened, and endangered plants and a few animal species in all 14 states, finding 515 sites with 2,050 species of concern—believed to be the largest number of occurrences of any unit of the national park system. Some species are globally rare or even unique to A.T. lands.

ATC then worked with the affiliated local clubs of volunteers to monitor those sites, but 75 percent today lack monitors. More recently, it has developed localized programs with other groups to monitor air and water quality at specific areas and map movements of birds and large mammals. Most of the seven other units of the park system and the eight national forests through which the trail passes also have monitoring programs, and many other scientists have been working independently on studies related to the trail.

Attempting to bring various organizations doing similar work together to advance protection of the A.T. only made sense. “The Appalachian Trail’s 2,174 miles are the spine of the world’s longest publicly owned greenway, a protected home for thousands of special species and for the legacies of the eastern

mountains. Downwind and downstream is perhaps one-third of the U.S. population. What happens to the Trail environment soon will happen to that environment,” notes Startzell, who is also chair of the American Hiking Society. “We have a long history of engaging citizens for public benefit, and this seems an ideal way to provide many more opportunities to a broader spectrum of the public.”

Pamela Underhill, manager of the National Park Service Appalachian Trail Park Office (ATPO), thought the information generated could lead to better land-use decisions along the trail’s corridor, provide an “early warning system” for resources at risk, and help educate the public “about what’s happening to our environment.”

For the next six to eight months, the scientists participating in the symposium will be refining guidelines for the collection of the data for effective sharing within the new partnership and use with many different “data sets” currently in use by various monitors. Others will be developing ways to recruit, train, and organize a corps of “citizen scientists” in a phased implementation plan to undertake that collection and to organize university and other researchers to analyze and make public the results over time. Still others will be seeking funding from private and public sources to underwrite the coordinating work.

Brian Mitchell, inventory and monitoring coordinator for the Park Service’s Northeast Temperate Network in Woodstock, Vt., said the project is needed to better assess for the public the effect of environmental stress on the mountain environment. But, he cautioned, it would only be considered a success if the work is relevant to public concerns, scientifically credible, and explicitly linked to decision-making. Citizen engagement is essential, several other speakers asserted.

Determining the status of the trail environment and then determining trends over time is important, but throughout “we must collaborate, coordinate, and communicate,” added Steven Fancy, the agency’s national monitoring program leader.

Michael Soukup, National Park Service associate director for natural resource stewardship and science, noted, “The A.T. started the partnership concept” in the tending of public lands. The work the group agreed to blends science, health, education, recreation, and, “most important, no child left indoors.”

“We are on the front edge of some exciting opportunities,” said David Meriwether, ecosystem management coordinator for the USDA Forest Service, who recalled working on A.T. projects in the Cherokee National Forest in Tennessee in the 1980s and “always having a sense of being a part of something really big.”

In addition to the trail conservancy and its major public partner, ATPO, symposium participants included representatives of U.S. Geological Survey agencies, the Pennsylvania Bureau of Conservation and Recreation, National Geographic Maps, National Park Service environmental monitoring networks and natural-resources managers, the National Aeronautics and Space Administration, the Maine A.T. Club, the North Georgia College and State University Environmental Leadership Center, NatureServe, USDA Forest Service environmental managers and researchers, Piedmont Appalachian Trail Hikers, the Vermont Institute of Natural Science/Mountain BirdWatch, the Appalachian Mountain Club research department, the Smithsonian Institution, the American Hiking Society, the National Parks Conservation Association, the Cornell Laboratory of Ornithology, the Virginia Division of Natural Heritage, and the State University of New York College of Environmental Science and Forestry.

The ATC-sponsored symposium and months of planning by Director of Conservation Mari Omland and her staff were funded by grants from the National Park Service, the U.S. Geological Survey, Aveda, and the Robert and Dee Leggett Foundation. Facilitation was provided by Foundations of Success.

Detailed summaries of what's known about the current trail environment can be found in a "Vital Signs" report posted at http://www.nature.nps.gov/im/units/netn/reports/reports_by_category.cfm?recID=Vital%20Signs.

The Appalachian Trail Conservancy, founded in 1925 by volunteers and federal officials who were working to put in place a continuous ridge top footpath on the Appalachian Mountains, is a private nonprofit organization focused solely on the protection, management, and promotion of the Appalachian National Scenic Trail, supporting 5,500 volunteers in 30 affiliated local organizations who typically spend 185,000 hours a year on trail-related work. It has formal partnerships with the National Park Service, USDA Forest Service, and the 14 states crossed by the trail. Further information can be found at <www.appalachiantrail.org>.

Contacts:

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Don Owen, NPS-ATPO, (304) 535-4003, donald_owen@nps.gov

APPENDIX 6: Literature Cited

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Marion, Jeffrey L. 2003. Camping Impact Management on the Appalachian National Scenic Trail. Appalachian Trail Conservancy, Harpers Ferry, WV. 109 pp.
http://www.appalachiantrail.org/atf/cf/{D25B4747-42A3-4302-8D48-EF35C0B0D9F1}/AT_Camping_Impacts.pdf

APPALACHIAN TRAIL

0 100 miles

